

Data Evaluation Record on the Toxicity of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 51068202, 51015707

Data Requirement: PMRA Data Code: 9.8.4 (TGAI) or 9.8.6 (EP)
EPA DP Barcode: N/A
OECD Data Point: IIA 8.12 (TGAI) and IIIA 10.8.1.1 (EP)
MRID: 51068202 (51015707 interim)
EPA Guideline: 850.4150

Test material: **MON 54140 (a.i. Dicamba DGA salt)** **Purity:** 39.6% a.e. [483 g/L]

Common name: Dicamba DGA
Chemical name: IUPAC: Not reported
CAS name: Not reported
CAS No.: Not reported
Synonyms: Clarity®

Primary Reviewer: Lauren Apakian
Environmental Scientist, CDM/CSS-Dynamac JV

Signature: 
Date: 3/25/20

Secondary Reviewer: Teresa Nelis
Senior Scientist, CDM/CSS-Dynamac JV

Signature: 
Date: 3/27/20

Primary Reviewer: Frank T. Farruggia, PhD.

Date: 10-25-2020  2020.10.25
12:57:38 -04'00'

EPA/OCSPP/EFED/ERB1

Secondary Reviewer(s): {.....}
{EPA/OECD/PMRA} **Date:** {.....}

This Data Evaluation Record may have been altered by the Environmental Fate and Effects Division subsequent to signing by CDM/CSS-Dynamac JV personnel. The CDM/CSS-Dynamac Joint Venture role does not include establishing Agency policies.

Reference/Submission No.: {.....}

Company Code: {.....} [For PMRA]
Active Code: {.....} [For PMRA]
Use Site Category: {.....} [For PMRA]
EPA PC Code: 128931

Date Evaluation Completed: 25-10-2020

CITATION: Jans, D. 2020. Effects to Trees from Foliar Application of Dicamba Clarity® Formulation. Unpublished study performed by Bayer AG, Frankfurt am Main, Germany. Study ID: HT19/015. Activity ID: EBDW0003. Study sponsored by Monsanto Company, Chesterfield, Missouri and BASF Corporation Research Triangle Park, North Carolina. Study completed on February 10, 2020.

Data Evaluation Record on the Toxicity of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

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EXECUTIVE SUMMARY:

The effect of **MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) + Induce surfactant** on the vegetative vigor of trees (Apple, *Malus domestica*; Cherry, *Prunus avium*; London plane, *Platanus acerifolia*; American red oak, *Quercus rubra*; and Swamp cypress, *Taxodium distichum*) was studied at a nominal test concentration of 0.000513 lb ae/A Dicamba in a Tier I test. The concentration of the spray application solution was not analytically confirmed.

The growth medium used in the vegetative vigor test was standard “Riedberg” soil sieved to 2 mm (silt loam; pH 6.77 (CaCl₂); organic carbon 0.72%). On day 90, saplings were cut at soil level for measuring the plant height and dry weight.

Negative control survival was 100% for all species and there were no significant decreases in survival compared to the negative control for any species tested.

When compared to the negative control, significant inhibitions in plant height were observed in the treatment group for apple and American red oak saplings.

The reviewer found no significant inhibitions in sapling dry weight compared to the control for all species tested.

The most sensitive species could not be determined because this test was conducted with a single test concentration (Tier I).

The reviewer found a statistically significant inhibition in the treatment group for apple and American red oak height compared to the negative control. Therefore, the resulting NOAEC values were <0.000513 lb ae/A for apple and American red oak height; and 0.000513 lb ae/A for all other sapling species and endpoints.

The significant inhibitions in apple and American red oak height when compared to the negative control were ≤25%, and therefore, based on these results, a Tier II study is not indicated.

The following phytotoxic symptoms were noted: chlorosis, necrosis, deformation/epinasty, and reddening. Slight phytotoxic symptoms were observed in all species.

Maximum Labeled Rate: Not reported

Results Synopsis

Most sensitive plant tested: Could not be determined; Tier I

NOAEC: <0.000513 lb ae/A (apple and American red oak height); 0.000513 lb ae/A (all other species and endpoints)

LOAEC: 0.000513 lb ae/A (apple and American red oak height); >0.000513 lb ae/A (all other species and endpoints)

Table 1. Summary of most sensitive parameters by species (lb ae/A).

Species	Survival		
	Control	Treatment	% Difference
Apple	100	100	0
Cherry	100	100	0
London Plane	100	100	0
American Red Oak	100	100	0

Data Evaluation Record on the Toxicity of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 51068202, 51015707

Swamp Cypress	100	100	0
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Table 1 (continued). Summary of most sensitive parameters by species (lb ae/A).

Species	Sapling height (cm)			Dry weight (g)		
	Control	Treatment	% Difference	Control	Treatment	% Difference
Apple	93.2	84	10*	43.2	42	3
Cherry	171	171	0	66.2	64.6	2
London Plane	175	168	4	102	102	0
American Red Oak	68.6	55.8	19*	23.3	20.8	11
Swamp Cypress	65.8	63.4	4	37.7	51.4	-36

* Statistically significant decrease compared to the negative control (Equal Variance t Two-Sample test, p<0.05)

This study is scientifically sound and is classified as acceptable. This study does not fulfill any guideline requirements.

I. MATERIALS AND METHODS

GUIDELINE FOLLOWED:

This study was conducted in compliance with EPA Ecological Effects Test Guidelines, OCSPP Guideline 850.4150: Vegetative Vigor and OECD Guideline for the Testing of Chemicals No. 227: Terrestrial Plant Test: Vegetative Vigour Test. The reviewer evaluated the study methods according to OCSPP Guideline 850.4150: Vegetative Vigor and noted the following deviations and deficiencies:

1. Only 1 sapling was tested per replicate. OCSPP guidance recommends at least 5 plants per replicate. The total number of saplings for each treatment group for each species was 20 (1 sapling/20 replicates), which did not meet the OCSPP guideline of 30 plants per treatment group.
2. The study author collected samples of the stock solutions for analysis and did not analyze the spray application solution after dilution of the stock solution. Therefore, measured concentrations of the test substance in the spray solutions could not be determined and the stability of the test substance in solution during the application could also not be determined.
3. The study author did not analyze survival. OCSPP guidance states survival should be analyzed at test termination.
4. Soil CEC and percent moisture were not reported.

These deviations did not have an impact on the acceptability of this study.

COMPLIANCE:

Signed and dated Good Laboratory Practices (GLP), Quality Assurance, and No Data Confidentiality statements were provided. This study was conducted in compliance with the OECD Principles of GLP and the German Chemicals Act (ChemG), Annex 1.

A. MATERIALS:

1. Test Material: MON 54140 (a.i. Dicamba diglycolamine (DGA) salt)

Description: Blue-green liquid

Data Evaluation Record on the Toxicity of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 51068202, 51015707

Lot No./Batch No.: 11494387

Purity: 39.6% a.e.; expiration 3/29/20

Stability of compound under test conditions: Concentrations of the test material in the stock solution collected prior to application yielded recoveries that ranged from 98 to 99%. Because samples were not collected following application, it was not possible to determine the stability of the test substance in the treatment solution.

Storage conditions of test chemicals: The test material was stored between 35°F and 100°F.

Table 2. Physical/chemical properties of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt)

Parameter	Values	Comments
Water solubility at 20°C	Not reported	
Vapor pressure	Not reported	
UV absorption	Not reported	
pKa	Not reported	
Kow	Not reported	

2. Test organism:

Tested species: Apple (*Malus domestica*, Rosaceae); Cherry (*Prunus avium*, Rosaceae); London Plane (*Platanus acerifolia*, Platanaceae); American Red Oak (*Quercus rubra*, Fagaceae); and Swamp Cypress (*Taxodium distichum*, Cupressaceae).

Seed source: Saplings were purchased from the tree nursery Immo Herbst Pflanzenkontor GmbH, Frankfurt am Main, Germany.

Prior seed treatment/sterilization: Saplings had no chemical treatments or pesticide coatings.

Historical % germination of seed: Not applicable.

Seed storage, if any: Not applicable.

B. STUDY DESIGN:

1. Experimental Conditions

- a. Limit test: None.
- b. Range-finding study: None.
- c. Definitive Study

Data Evaluation Record on the Toxicity of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 51068202, 51015707

Table 3: Experimental Parameters - Vegetative Vigor.

Parameters	Vegetative Vigor	
	Details	Remarks
		Criteria
Duration of the test	90 days	<p><i>Recommended test duration is 14-21 days.</i></p> <p><i>OECD recommends that the test be terminated no sooner than 14 days after 50 percent of the control seedlings have emerged</i></p>
Number of seeds/plants per replicate	Twenty replicates per treatment group, with one sapling per replicate for all species.	<p><i>Ten seeds per replicate should be used.</i></p> <p><i>OECD recommends a minimum of five seeds planted in each replicate within 24 hours of incorporation of the test substance. All seeds of each species for each test should be of the same size class. The seed should not be imbibed.</i></p>
Number of plants retained after thinning	Not applicable	
<u>Number of replicates</u>		
Control:	20	
Adjuvant control:	20	<i>Four replicates per dose should be used.</i>
Treated:	20	<i>OECD recommends a minimum of four replicates per treatment</i>
<u>Number of test concentrations</u>	Negative and adjuvant controls and 1 treatment level	<p><i>Five test concentrations should be used with a dose range of 2X or 3X progression</i></p> <p><i>OECD recommends three concentrations, preferably with application rates equivalent to 0.0 (control), 1.0, 10.0 and 100 mg substance per kg of oven-dried soil.</i></p>
<u>Method and interval of analytical verification</u>	Samples of the stock solutions were collected prior to application and were analyzed via high phase liquid chromatography with mass	

Data Evaluation Record on the Toxicity of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 51068202, 51015707

LOQ:	spectrometry detection (HPLC-MS). Samples of the spray solutions were not analyzed.	
LOD:	Not reported Not reported	
Adjuvant (type, percentage, if used)	Induce, a non-ionic, low-foam wetter/spreader, at 0.125% v/v	
<u>Test container (pot)</u>		Pots were filled with approximately 3 L of soil.
Size/Volume	20.5 cm height; 15-cm diameter	<i>Non-porous containers should be used.</i>
Material: (glass/polystyrene)	Commercial non-porous plastic	<i>OECD recommends that non-porous plastic or glazed pot be used.</i>
Growth facility	Greenhouse	
Method/depth of seeding	Not applicable; test began with tree saplings	
<u>Test material application</u>		
Application time including the plant growth stage	Not reported	The test material was applied on the leaves/needles and aboveground portion of each tree.
Number of applications	1	
Application interval	N/A- single application	
Method of application	The test material was applied using a TeeJet 8001 EVS spray nozzle suspended 33-35 cm above the soil surface operating at 3.70 bar.	
<u>Details of soil used</u>		
Geographic location	Not reported	Soil used was standard "Riedberg" soil sieved to 2 mm.
Depth of soil collection	Not reported	
Soil texture	Silt loam	
% sand	18.5	Water holding capacity: 38.6 g/100g
% silt	61.1	Electric conductivity: 256 µS/cm
% clay	20.4	
pH	6.77 (CaCl ₂)	<i>Soil mixes containing sandy loam, loam, or clay loam soil with no greater than 2% organic matter are preferable. Glass beads, rock wool, and 100% acid washed sand are not preferred.</i>
% organic carbon	0.72%	
CEC	Not reported	<i>OECD prefers the soil to be sieved (0.5 cm) to remove coarse fragments. Carbon content should not exceed 1.5% (3% organic matter). Fine particles (under 20µm) makeup should be between 10 and 20%. The recommended pH is between 5.0 and 7.5.</i>
Moisture at 1/3 atm (%)	Not reported	

Data Evaluation Record on the Toxicity of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 51068202, 51015707

Details of nutrient medium, if used	N/A	
<u>Watering regime and schedules</u> Water source/type:	Laboratory water	
Volume applied: Interval of application: Method of application:	200 L/ha As necessary Bottom watering (through saucers)	<i>EPA prefers that bottom watering be utilized for vegetative vigor studies so that the chemical is not leached out of the soil during the test.</i>
Any pest control method/fertilization, if used	Wuxal Super, a liquid fertilizer, was added to the saucers during watering for all tree species.	
<u>Test conditions</u> Temperature: Photoperiod: Light intensity and quality: Relative humidity:	Range: 19-31°C (light); 14-26°C (dark) 16L:8D Natural daylight supplemented by artificial lighting; 115-824 µmol/m ² /sec Range: 55-85%	<i>EPA prefers that the cold vs warm loving plants be tested in two separate groups to optimize plant growth.</i> <i>OECD prefers that the temperature, humidity and light conditions be suitable for maintaining normal growth of each species for the test period.</i>
<u>Reference chemical (if used)</u> Name: Concentrations:	N/A	
Other parameters, if any	None	

2. Observations:

Table 4: Observation Parameters - Vegetative Vigor.

Parameters	Vegetative Vigor	
	Details	Remarks
Parameters measured (e.g., number of germinated seeds, emerged seedlings, plant height, fresh weight or other endpoints)	- Dry weight - Height - Phytotoxicity	
Measurement technique for each parameter	Phytotoxicity was visually determined. Plant height was evaluated by	

Data Evaluation Record on the Toxicity of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 51068202, 51015707

	measuring from the bottom of the tree at soil surface to the tip of the longest leaf/needle. The respective measured stem was tagged at the initial assessment to ensure the same branch was always measured. Dry weight was determined by cutting each tree at the soil surface, placing it in a pre-weighed bag, and drying at 60°C until a constant weight was reached.	
Observation intervals	Each pot was inspected for height and phytotoxicity on days 14, 28, 45, 60, and 90. Dry weight was recorded at test termination.	
Other observations, if any	N/A	
Were raw data included?	Yes	
Phytotoxicity rating system, if used	0% - no injury 10% - slight injury 15-30% - moderate injury 50-80% - severe injury 100% - extreme damage; complete death; no green tissue	

II. RESULTS and DISCUSSION:

A. INHIBITORY EFFECTS:

Both the reviewer and the study author compared the treatment group to the negative control. The negative control was not significantly different from the adjuvant control, except swamp cypress dry weight of the negative control was significantly lower than dry weight of the adjuvant control (Equal Variance t Two-Sample test, $p = 0.0136$).

The reviewer determined negative control survival was 100% for all species and there were no significant decreases in survival compared to the negative control for any species tested ($p > 0.05$) (Table 4a). The study author did not analyze survival.

Table 4a: Percent Inhibition of Plant Survival

Data Evaluation Record on the Toxicity of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 51068202, 51015707

Nominal Test Rate ² lb ae/A	Percent Inhibition ¹				
	Apple	Cherry	London Plane	American Red Oak	Swamp Cypress
0.000513	0	0	0	0	0

¹ Treatment groups compared to the negative control.

² The nominal test rate was not analytically confirmed.

³ The study author did not statistically evaluate survival.

The reviewer found significant inhibitions in the treatment group for apple and American red oak sapling height when compared to the negative control (Equal Variance t Two-Sample test, p<0.05) (Table 4b).

The study author statistically analyzed the increase in length at day 90 from day -1 for the treatment group saplings compared to the increase in length at day 90 from day -1 for the negative control saplings (p. 32). By this comparison, the study author found significant differences in apple and American red oak similar to the reviewer, but also found significant inhibitions in London plane sapling height growth compared to the negative control (Student-t test for Homogeneous Variance, one sided smaller, p ≤ 0.05).

Table 4b: Percent Inhibition of Sapling Height

Nominal Test Rate ² lb ae/A	Percent Inhibition ¹				
	Apple	Cherry	London Plane	American Red Oak	Swamp Cypress
0.000513	10* (18)	0	4 ³ (6)	19* (35)	4

¹ Treatment groups compared to the negative control. Study author inhibitions are based on comparisons of the increase in sapling height for the treatment group from day -1 to day 90 to the increase in sapling height for the negative control from day -1 to day 90 and are shown when they are significant and different from those of the reviewer.

² The nominal test rate was not analytically confirmed.

³ The study author identified this response as significantly different from the control, while the reviewer did not.

* Statistically significant when compared to the negative control.

The study author and reviewer found no significant inhibitions in sapling dry weight compared to the control for all species tested (p>0.05) (Table 4c).

Data Evaluation Record on the Toxicity of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 51068202, 51015707

Table 4c: Percent Inhibition of Sapling Dry Weight

Nominal Test Rate ² lb ae/A	Percent Inhibition ¹				
	Apple	Cherry	London Plane	American Red Oak	Swamp Cypress
0.000513	3	2	0	11	-36

¹ Treatment groups compared to the negative control.

² The nominal test rate was not analytically confirmed.

Based on the reviewer's results, the most sensitive dicot species could not be determined because this test was conducted with a single test concentration (Tier I). The NOAEC value of apple and American red oak height is <0.000513 lb ae/A; the NOAEC value of all other species and endpoints is 0.000513 lb ae/A.

The following phytotoxic symptoms were noted: chlorosis, necrosis, deformation/epinasty, and reddening. Slight phytotoxic symptoms were observed in all species.

B. REPORTED STATISTICS:

Data were analyzed using Microsoft Excel and ToxRat, Version 3.3.0. A means comparison test (Student t test for Homogeneous Variance; one-sided smaller; p≤0.05) was performed to determine whether there was a >25% reduction in the limit rate versus the control. A comparison of the negative controls and the adjuvant controls was included for all endpoints at each assessment date.

Data Evaluation Record on the Toxicity of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 51068202, 51015707

Table 5a: Effect of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) on 90-Day Vegetative Vigor (Tier I)

Species	Results summary for height (lb ae/A Dicamba)									
	height (cm)	NOAEC	IC ₀₅	95%CI	IC ₂₅	95%CI	IC ₅₀	95%CI	slope	95%CI
Apple	83-93.2	<0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Cherry	171-176	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
London Plane	168-175	<0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
American Red Oak	55.8-68.6	<0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Swamp Cypress	63.4-68.2	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A

ND- Not determined. N/A- Not applicable.

Table 5b: Effect of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) on 90-Day Vegetative Vigor (Tier I)

Species	Results summary for weight (lb ae/A Dicamba); mean dry weight									
	weight (g)	NOAEC	IC ₀₅	95%CI	IC ₂₅	95%CI	IC ₅₀	95%CI	slope	95%CI
Apple	39.3-43.2	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Cherry	64.6-66.2	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
London Plane	97.1-102	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
American Red Oak	20.8-24.7	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Swamp Cypress	37.7-51.4	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A

ND- Not determined. N/A- Not applicable.

Data Evaluation Record on the Toxicity of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 51068202, 51015707

Table 5c: Effect of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) on 90-Day Vegetative Vigor (Tier I)

Species	Results summary for survival (lb ae/A Dicamba)									
	%	NOAEC	EC ₀₅	95%CI	EC ₂₅	95%CI	EC ₅₀	95%CI	slope	95%CI
Apple	100	ND	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Cherry	100	ND	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
London Plane	100	ND	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
American Red Oak	100	ND	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Swamp Cypress	100	ND	ND	N/A	ND	N/A	ND	N/A	N/A	N/A

ND- Not determined. N/A- Not applicable.

Data Evaluation Record on the Toxicity of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 51068202, 51015707

C. VERIFICATION OF STATISTICAL RESULTS BY THE REVIEWER:

All analyses were conducted comparing treated to the negative control. These analyses were conducted using CETIS version 1.9.5.3 with database backend settings implemented by EFED on 7/25/2017. The reviewer analyzed survival, height, and dry weight by comparing the negative control with the treatment group using the Equal Variance t Two-Sample test. Nominal concentrations were used for all statistical analyses.

Table 6a: Effect of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) on 90-Day Vegetative Vigor (Tier I)

Species	Results summary for height (lb ae/A Dicamba)									
	height (cm)	NOAEC	IC ₀₅	95%CI	IC ₂₅	95%CI	IC ₅₀	95%CI	slope	95%CI
Apple	83-93.2	<0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Cherry	171-176	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
London Plane	168-175	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
American Red Oak	55.8-68.6	<0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Swamp Cypress	63.4-68.2	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A

ND- Not determined. N/A- Not applicable.

Table 6b: Effect of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) on 90-Day Vegetative Vigor (Tier I)

Species	Results summary for weight (lb ae/A Dicamba); mean dry weight									
	weight (g)	NOAEC	IC ₀₅	95%CI	IC ₂₅	95%CI	IC ₅₀	95%CI	slope	95%CI
Apple	39.3-43.2	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Cherry	64.6-66.2	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
London Plane	97.1-102	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
American Red Oak	20.8-24.7	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Swamp Cypress	37.7-51.4	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A

ND- Not determined. N/A- Not applicable.

Data Evaluation Record on the Toxicity of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 51068202, 51015707

Table 6c: Effect of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) on 90-Day Vegetative Vigor (Tier I)

Species	Results summary for survival (lb ae/A Dicamba); based on # planted									
	%	NOAEC	EC ₀₅	95%CI	EC ₂₅	95%CI	EC ₅₀	95%CI	slope	95%CI
Apple	100	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Cherry	100	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
London Plane	100	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
American Red Oak	100	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Swamp Cypress	100	0.000513	ND	N/A	ND	N/A	ND	N/A	N/A	N/A

ND- Not determined. N/A- Not applicable.

Most sensitive species could not be determined; Tier I

NOAEC: <0.000513 lb ae/A (apple and American red oak height); 0.000513 lb ae/A (all other species and endpoints)

LOAEC: 0.000513 lb ae/A (apple and American red oak height); >0.000513 lb ae/A (all other species and endpoints)

D. STUDY DEFICIENCIES:

See deficiencies listed above.

E. REVIEWER'S COMMENTS:

The study author's and reviewer's results were in partial agreement. This test was conducted with a single test concentration (Tier I); therefore, the most sensitive dicot species could not be determined. No monocot species were tested. The study author found significant inhibitions in apple, London plane, and American red oak height, and observed an inhibition of ≥25% for American red oak height, when increases in height over the day -1 to day 90 study period for the treatment group where compared to increases in height over the study period for the control groups. The study author's NOAEC values were <0.000513 lb ae/A for apple, London plane, and American red oak height and 0.000513 lb ae/A for all other species/endpoints. The reviewer did not observe inhibitions of ≥25% for any species/endpoint but found significant inhibitions in apple and American red oak height compared to the negative control. The reviewer determined NOAEC values were <0.000513 lb ae/A for apple and American red oak height and 0.000513 lb ae/A for all other species/endpoints.

Differences in the study author and reviewer NOAEC values and inhibitions resulted from the reviewer comparing heights in the treatment group to the negative control while study author compared increases in heights for the treatment group over the study period to the increases in heights of the control group over the study period. The study author and reviewer also applied different statistical methods. The reviewer's results are presented in the Executive Summary and Conclusions sections of this DER.

Data Evaluation Record on the Toxicity of MON 54140 (a.i. Dicamba diglycolamine (DGA) salt) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 51068202, 51015707

The in-life portion of the Tier I test was initiated on May 23, 2019 and completed on December 28, 2019.

F. CONCLUSIONS:

This study **is not scientifically sound** and is classified as **acceptable**. This test was conducted with a single test concentration (Tier I); therefore, the most sensitive species could not be determined. When compared to the negative control, no inhibitions of $\geq 25\%$ were observed for any species/endpoint. The reviewer found a statistically significant inhibition in the treatment group for apple and American red oak height compared to the negative control. Therefore, the resulting NOAEC values were <0.000513 lb ae/A for apple and American red oak height; and 0.000513 lb ae/A for all other sapling species and endpoints.

III. REFERENCES:

1. Ratte, M. ToxRat Professional. Version 3.3.0. ToxRat Solutions GmbH. Alsdorf, Germany

CETIS Summary Report

Report Date: 24 Mar-20 15:36 (p 1 of 2)
 Test Code/ID: 51068202 apple / 18-2011-0371

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)				Bayer AG, Crop Protection
Batch ID: 16-1430-5322	Test Type: Vegetative Vigor Tier II		Analyst:	
Start Date: 23 May-19	Protocol: OCSPP 850.4150 Plant Vegetative Vigor		Diluent:	
Ending Date: 24 Mar-20 14:34	Species: Malus domestica (Apple)		Brine:	
Test Length: 306d 15h	Taxon:		Source:	Immo Herbst Pflanzenkonto Age:
Sample ID: 04-7719-5728	Code: 51068202 apple		Project:	
Sample Date: 23 May-19	Material: MON 54140 (ai: Dicamba)		Source:	Monsanto Company
Receipt Date: 24 Mar-20 14:34	CAS (PC):		Station:	
Sample Age: n/a	Client: CDM Smith			

Two MRIDs associated with this study: 51068202 and 51015707

Blank weight: The Wilcoxon Rank Sum Two-Sample test would not run and the following message was produced: "Either there is no detectable variance, insufficient replication or too many groups selected to complete the Wilcoxon Rank Sum Two-Sample Test. You may need to reduce the number of groups tested or manually select a different method since your data cannot be run with the current configuration." Therefore, the Equal Variance t test was used for blank weight comparison despite the non-normal distribution as seen in the Shapiro-Wilks test.

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
12-2226-8469	Height	Equal Variance t Two-Sample Test	0.0502	Solvent Blank passed height	1
11-6130-7256	Height	Equal Variance t Two-Sample Test	0.0428	0.000513lbs ae/A failed height	1
04-3694-9540	Survival	Equal Variance t Two-Sample Test	1.0000	Solvent Blank passed survival	1
07-3026-4266	Survival	Fisher Exact Test	1.0000	0.000513lbs ae/A passed survival	1
00-0594-4131	Weight	Equal Variance t Two-Sample Test	0.2622	Solvent Blank passed weight	1
13-3456-9853	Weight	Equal Variance t Two-Sample Test	0.3639	0.000513lbs ae/A passed weight	1

Height Summary

Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	20	83	74.6	91.3	40	108	3.97	17.8	21.42%	0.00%
0	N	20	93.2	86.6	99.9	67	123	3.19	14.2	15.28%	-12.42%
0.000513		20	84	75.4	92.7	45	115	4.12	18.4	21.94%	-1.33%

Survival Summary

Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	20	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
0	N	20	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
0.000513		20	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%

Weight Summary

Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	20	39.3	34.2	44.3	24	61.6	2.41	10.8	27.49%	0.00%
0	N	20	43.2	38	48.4	30.9	75.6	2.47	11	25.52%	-10.00%
0.000513		20	42	37	47	25.9	61.4	2.4	10.7	25.52%	-6.93%

CETIS Summary Report

Report Date: 24 Mar-20 15:36 (p 2 of 2)
 Test Code/ID: 51068202 apple / 18-2011-0371

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)**Bayer AG, Crop Protection****Height Detail**

Conc-lbs ae/A	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	S	88	96	94	105	107	100	85	40	87	69
		79	74	70	96	60	58	108	77	86	80
0	N	76	89	93	107	91	86	85	93	94	123
		67	85	94	120	97	112	77	83	104	89
0.000513		93	93	47	82	84	115	105	77	66	87
		88	82	45	72	98	82	77	74	112	102

Survival Detail

Conc-lbs ae/A	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	S	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
0	N	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
0.000513		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Weight Detail

Conc-lbs ae/A	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	S	46	61.6	44.6	49.1	40.2	37.3	35	24	40.9	33.1
		26.7	27.9	27.7	59.1	25	35.8	49.3	34.8	49.1	38.3
0	N	34.6	37.4	38.2	45.3	34.9	36.9	43.2	64.9	30.9	75.6
		38.2	39.6	47.9	40.7	39.2	53.7	34.7	50.9	42.1	35.1
0.000513		42.9	55.2	25.9	49.1	39.1	55.6	52.8	36.3	36.9	61.4
		47.8	44.7	48.4	38.4	31	31.4	26.5	29.5	54.1	32.9

CETIS Summary Report

Report Date: 24 Mar-20 15:40 (p 1 of 2)
 Test Code/ID: 51068202 cherry / 18-4533-9821

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)				Bayer AG, Crop Protection
Batch ID: 05-4487-1130	Test Type: Vegetative Vigor Tier II		Analyst:	
Start Date: 23 May-19	Protocol: OCSPP 850.4150 Plant Vegetative Vigor		Diluent:	
Ending Date: 24 Mar-20 14:34	Species: Prunus avium (Cherry)		Brine:	
Test Length: 306d 15h	Taxon:		Source:	Immo Herbst Pflanzenkonto Age:
Sample ID: 19-9415-4717	Code: 51068202 cherry		Project:	
Sample Date: 23 May-19	Material: MON 54140 (ai: Dicamba)		Source:	Monsanto Company
Receipt Date: 24 Mar-20 14:34	CAS (PC):		Station:	
Sample Age: n/a	Client: CDM Smith			

Two MRIDs associated with this study: 51068202 and 51015707

Weight: The Wilcoxon Rank Sum Two-Sample test would not run and the following message was produced: "Either there is no detectable variance, insufficient replication or too many groups selected to complete the Wilcoxon Rank Sum Two-Sample Test. You may need to reduce the number of groups tested or manually select a different method since your data cannot be run with the current configuration." Therefore, the Equal Variance t test was used for treatment weight comparison despite the non-normal distribution as seen in the Shapiro-Wilks test.

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
17-3751-3481	Height	Equal Variance t Two-Sample Test	0.6800	Solvent Blank passed height	1
18-9968-2288	Height	Equal Variance t Two-Sample Test	0.4771	0.000513lbs ae/A passed height	1
20-0865-1359	Survival	Equal Variance t Two-Sample Test	1.0000	Solvent Blank passed survival	1
09-1996-4246	Survival	Fisher Exact Test	1.0000	0.000513lbs ae/A passed survival	1
04-6551-5722	Weight	Equal Variance t Two-Sample Test	0.9885	Solvent Blank passed weight	1
15-2427-9255	Weight	Equal Variance t Two-Sample Test	0.3502	0.000513lbs ae/A passed weight	1

Height Summary

Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	20	176	160	191	86	220	7.47	33.4	19.02%	0.00%
0	N	20	171	155	187	117	224	7.67	34.3	20.03%	2.53%
0.000513		20	171	153	188	64	223	8.23	36.8	21.58%	2.90%

Survival Summary

Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	20	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
0	N	20	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
0.000513		20	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%

Weight Summary

Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	20	66.2	61.1	71.3	48.3	84.5	2.43	10.9	16.42%	0.00%
0	N	20	66.2	61.6	70.7	45.8	86.2	2.18	9.73	14.70%	0.07%
0.000513		20	64.6	57.2	71.9	26.1	81.1	3.51	15.7	24.31%	2.49%

CETIS Summary Report

Report Date: 24 Mar-20 15:40 (p 2 of 2)
Test Code/ID: 51068202 cherry / 18-4533-9821

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)**Bayer AG, Crop Protection****Height Detail**

Conc-lbs ae/A	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	S	196	169	195	167	152	181	219	215	179	86
		182	152	179	173	220	149	182	186	118	214
0	N	168	199	126	203	221	199	204	123	210	117
		188	224	164	187	132	146	152	135	157	170
0.000513		182	172	149	207	211	171	177	218	133	174
		166	142	187	189	172	163	223	121	64	191

Survival Detail

Conc-lbs ae/A	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	S	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
0	N	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
0.000513		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Weight Detail

Conc-lbs ae/A	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	S	79.9	57.7	80.8	64.7	49.6	74.3	72	76.3	59.7	67.6
		64.4	61.1	57.2	68.8	80.3	48.3	64.9	62.1	50.2	84.5
0	N	67.2	66.1	72.8	69.8	71.9	72.3	76.3	46.8	59.5	68.2
		74.9	66.5	54.9	69.7	45.8	61	66.8	57.5	69.2	86.2
0.000513		73.8	74.4	38.6	78.4	68.2	81.1	62.3	68	53.9	64.8
		80.8	66.8	75.8	71.9	64.7	61.2	75.1	26.1	31.7	73.8

CETIS Summary Report

Report Date: 24 Mar-20 15:17 (p 1 of 2)
 Test Code/ID: 51068202 london / 11-2417-2417

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)

Bayer AG, Crop Protection

Batch ID:	01-5570-2761	Test Type:	Vegetative Vigor Tier II	Analyst:
Start Date:	23 May-19	Protocol:	OCSPP 850.4150 Plant Vegetative Vigor	Diluent:
Ending Date:		Species:	Platanus acerifolia (London Plane)	Brine:
Test Length:	n/a	Taxon:		Source: Immo Herbst Pflanzenkonto
Sample ID:	16-9824-7603	Code:	51068202 london	Age:
Sample Date:	23 May-19	Material:	MON 54140 (ai: Dicamba)	Project:
Receipt Date:		CAS (PC):		Source: Monsanto Company
Sample Age:	n/a	Client:	CDM Smith	Station:

Two MRIDs associated with this study: 51068202 and 51015707

Height: The Wilcoxon Rank Sum Two-Sample test would not run and the following message was produced: "Either there is no detectable variance, insufficient replication or too many groups selected to complete the Wilcoxon Rank Sum Two-Sample Test. You may need to reduce the number of groups tested or manually select a different method since your data cannot be run with the current configuration." Therefore, the Equal Variance t test was used for treatment comparison height despite the non-normal distribution as seen in the Shapiro-Wilks test.

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
14-9264-4282	Height	Equal Variance t Two-Sample Test	0.8297	Solvent Blank passed height	1
10-7944-7351	Height	Equal Variance t Two-Sample Test	0.1283	0.000513lbs ae/A passed height	1
10-6155-7749	Survival	Equal Variance t Two-Sample Test	1.0000	Solvent Blank passed survival	1
13-5066-8775	Survival	Fisher Exact Test	1.0000	0.000513lbs ae/A passed survival	1
13-3277-1050	Weight	Equal Variance t Two-Sample Test	0.3974	Solvent Blank passed weight	1
19-5496-5583	Weight	Equal Variance t Two-Sample Test	0.4947	0.000513lbs ae/A passed weight	1

Height Summary

Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	20	174	167	182	142	194	3.6	16.1	9.25%	0.00%
0	N	20	175	167	183	128	200	3.9	17.5	9.96%	-0.66%
0.000513		20	168	159	178	111	193	4.37	19.5	11.60%	3.22%

Survival Summary

Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	20	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
0	N	20	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
0.000513		20	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%

Weight Summary

Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	20	97.1	89	105	67.2	126	3.85	17.2	17.72%	0.00%
0	N	20	102	92.6	112	44.3	128	4.56	20.4	19.97%	-5.26%
0.000513		20	102	93.1	111	60.9	141	4.29	19.2	18.77%	-5.17%

CETIS Summary Report

Report Date: 24 Mar-20 15:17 (p 2 of 2)
Test Code/ID: 51068202 london / 11-2417-2417

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)**Bayer AG, Crop Protection****Height Detail**

Conc-lbs ae/A	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	S	186	158	157	194	174	164	194	183	181	191
		175	152	153	187	186	178	156	179	191	142
0	N	192	178	200	161	184	168	197	163	171	153
		128	172	187	175	183	160	182	193	165	192
0.000513		184	166	145	163	174	151	154	190	175	184
		179	174	155	175	111	156	181	192	193	167

Survival Detail

Conc-lbs ae/A	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	S	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
0	N	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
0.000513		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Weight Detail

Conc-lbs ae/A	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	S	95.3	120	96.3	111	105	102	126	102	75.2	86.3
		119	72.8	67.2	115	109	88.8	69.3	98.5	94.7	88.3
0	N	101	77.2	98.7	118	111	91.8	103	85.5	96	101
		44.3	115	100	125	117	116	111	76	127	128
0.000513		102	107	92.6	93.7	123	99.3	81.7	103	106	103
		81.1	103	112	126	60.9	74	141	128	111	94.1

CETIS Summary Report

Report Date: 24 Mar-20 15:46 (p 1 of 2)
 Test Code/ID: 51068202 red oa / 19-5492-7402

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)				Bayer AG, Crop Protection
Batch ID: 13-0965-8920	Test Type: Vegetative Vigor Tier II		Analyst:	
Start Date: 23 May-19	Protocol: OCSPP 850.4150 Plant Vegetative Vigor		Diluent:	
Ending Date: 24 Mar-20 14:34	Species: Quercus rubra (Northern Red Oak)		Brine:	
Test Length: 306d 15h	Taxon:		Source:	Immo Herbst Pflanzenkonto Age:
Sample ID: 18-4454-4985	Code: 51068202 red oa		Project:	
Sample Date: 23 May-19	Material: MON 54140 (ai: Dicamba)		Source:	Monsanto Company
Receipt Date: 24 Mar-20 14:34	CAS (PC):		Station:	
Sample Age: n/a	Client: CDM Smith			

Two MRIDs associated with this study: 51068202 and 51015707

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
10-3985-7851	Height	Equal Variance t Two-Sample Test	0.6161	Solvent Blank passed height	1
03-1523-9613	Height	Equal Variance t Two-Sample Test	0.0038	0.000513lbs ae/A failed height	1
06-0881-6840	Survival	Equal Variance t Two-Sample Test	1.0000	Solvent Blank passed survival	1
05-8642-8036	Survival	Fisher Exact Test	1.0000	0.000513lbs ae/A passed survival	1
12-1310-8849	Weight	Equal Variance t Two-Sample Test	0.6421	Solvent Blank passed weight	1
08-5758-5337	Weight	Equal Variance t Two-Sample Test	0.1849	0.000513lbs ae/A passed weight	1

Height Summary

Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	20	65.9	57.7	74.1	39	111	3.93	17.6	26.69%	0.00%
0	N	20	68.6	61	76.2	43	104	3.61	16.2	23.55%	-4.10%
0.000513		20	55.8	50.2	61.5	41	88	2.72	12.2	21.78%	15.25%

Survival Summary

Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	20	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
0	N	20	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
0.000513		20	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%

Weight Summary

Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	20	24.7	19.8	29.6	9.61	45.7	2.36	10.6	42.75%	0.00%
0	N	20	23.3	19.3	27.3	8.84	38.6	1.9	8.51	36.56%	5.75%
0.000513		20	20.8	16.6	25	10.8	43.2	2	8.93	43.00%	15.89%

CETIS Summary Report

Report Date: 24 Mar-20 15:46 (p 2 of 2)
Test Code/ID: 51068202 red oa / 19-5492-7402

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)**Bayer AG, Crop Protection****Height Detail**

Conc-lbs ae/A	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	S	60	76	51	48	39	53	42	59	76	96
		80	63	111	71	74	50	72	63	62	72
0	N	64	43	58	60	84	86	47	59	77	88
		61	62	80	45	56	77	70	104	66	85
0.000513		55	41	48	71	48	44	62	59	58	88
		56	60	58	45	42	71	69	53	47	42

Survival Detail

Conc-lbs ae/A	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	S	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
0	N	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
0.000513		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Weight Detail

Conc-lbs ae/A	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	S	18.3	30.8	15.8	20.6	9.61	18.1	13.3	29.6	20.1	45.7
		30.6	31.7	44.7	18.5	23.8	14.4	38.9	12.1	24.8	32.7
0	N	32.1	8.84	19.5	22.2	34.4	31.1	10.4	16.4	19.9	26.5
		19.8	22.9	20.8	9.49	19.2	25.1	38.6	32	22.2	34
0.000513		20.8	12.3	15.1	27.1	11.6	14	23.1	19.1	14.4	29.7
		20.7	29.9	27.6	15	15.3	43.2	35.9	18	10.8	11.8

CETIS Summary Report

Report Date: 24 Mar-20 20:45 (p 1 of 2)
 Test Code/ID: 51068202 swamp / 05-4475-7345

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)				Bayer AG, Crop Protection
Batch ID: 03-1389-2466	Test Type: Vegetative Vigor Tier II		Analyst:	
Start Date: 23 May-19	Protocol: OCSPP 850.4150 Plant Vegetative Vigor		Diluent:	
Ending Date: 24 Mar-20 14:34	Species: Taxodium distichum (Swamp Cypress)		Brine:	
Test Length: 306d 15h	Taxon:		Source:	Immo Herbst Pflanzenkonto Age:
Sample ID: 12-1883-3136	Code: 51068202 swamp		Project:	
Sample Date: 23 May-19	Material: MON 54140 (ai: Dicamba)		Source:	Monsanto Company
Receipt Date: 24 Mar-20 14:34	CAS (PC):		Station:	
Sample Age: n/a	Client: CDM Smith			

Two MRIDs associated with this study: 51068202 and 51015707

Height: The Wilcoxon Rank Sum Two-Sample test would not run and the following message was produced: "Either there is no detectable variance, insufficient replication or too many groups selected to complete the Wilcoxon Rank Sum Two-Sample Test. You may need to reduce the number of groups tested or manually select a different method since your data cannot be run with the current configuration." Therefore, the Equal Variance t test was used for treatment comparison height despite the non-normal distribution as seen in the Shapiro-Wilks test.

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
15-1169-4978	Height	Equal Variance t Two-Sample Test	0.5531	Solvent Blank passed height	1
18-3369-4346	Height	Equal Variance t Two-Sample Test	0.2555	0.000513lbs ae/A passed height	1
10-8071-1446	Survival	Equal Variance t Two-Sample Test	1.0000	Solvent Blank passed survival	1
10-6952-4772	Survival	Equal Variance t Two-Sample Test	1.0000	0.000513lbs ae/A passed survival	1
11-8531-1635	Survival	Fisher Exact Test	1.0000	0.000513lbs ae/A passed survival	1
03-1651-8873	Weight	Equal Variance t Two-Sample Test	0.0136	Solvent Blank failed weight	1
06-3847-1239	Weight	Equal Variance t Two-Sample Test	0.9885	0.000513lbs ae/A passed weight	1

Height Summary

Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	20	68.2	62	74.3	45	91	2.96	13.2	19.40%	0.00%
0	N	20	65.8	60.4	71.2	52	96	2.58	11.6	17.57%	3.45%
0.000513		20	63.4	57.8	68.9	48	93	2.64	11.8	18.62%	7.04%

Survival Summary

Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	20	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
0	N	20	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
0.000513		20	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%

Weight Summary

Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	20	51.3	42.7	59.9	17.3	87	4.11	18.4	35.83%	0.00%
0	N	20	37.7	30.8	44.6	17.6	82	3.3	14.8	39.16%	26.59%
0.000513		20	51.4	41.4	61.3	13.4	87.2	4.75	21.2	41.32%	-0.10%

CETIS Summary Report

Report Date: 24 Mar-20 20:45 (p 2 of 2)
 Test Code/ID: 51068202 swamp / 05-4475-7345

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)

Bayer AG, Crop Protection

Height Detail

Conc-lbs ae/A	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	S	67	82	74	51	77	84	91	60	78	65
		82	61	52	64	70	65	57	86	45	52
0	N	75	68	55	72	75	74	61	52	54	57
		58	96	57	87	63	59	67	70	61	55
0.000513		54	59	81	65	53	58	88	54	68	61
		50	67	63	65	58	62	93	61	48	59

Survival Detail

Conc-lbs ae/A	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	S	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
0	N	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
0.000513		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Weight Detail

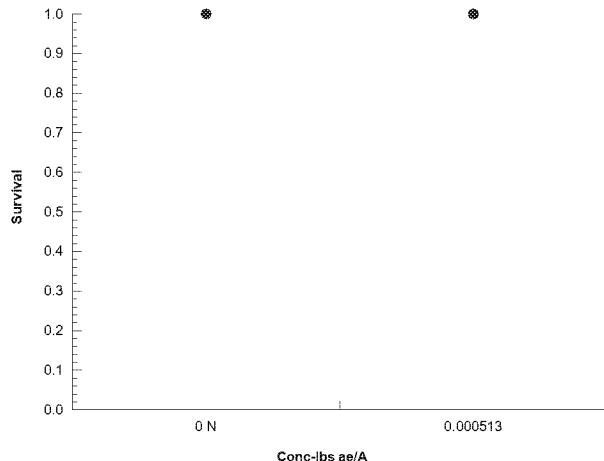
Conc-lbs ae/A	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	S	36.7	34.8	45.5	27.7	48.1	51.1	87	30.6	46.1	58.5
		61.5	70.7	52	47	54.7	81.2	82	44.7	17.3	49.4
0	N	27.9	38.6	18	36.4	82	46.8	46.8	18.4	48	27
		23.5	42.1	33.6	39.8	44.6	17.6	34.9	39.3	35.8	52.6
0.000513		22.2	67.6	30.2	54.8	34.1	35.9	47.2	13.4	79.6	80.3
		52.7	42.2	51.2	87.2	81.9	39.2	70.4	60.7	46.5	30.4

CETIS Analytical Report

Report Date: 24 Mar-20 15:35 (p 1 of 1)
Test Code/ID: 51068202 apple / 18-2011-0371

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)				Bayer AG, Crop Protection
Analysis ID: 07-3026-4266	Endpoint: Survival	CETIS Version:	CETISv1.9.5	
Analyzed: 24 Mar-20 15:33	Analysis: Single 2x2 Contingency Table	Status Level:	1	
Batch ID: 16-1430-5322	Test Type: Vegetative Vigor Tier II	Analyst:		
Start Date: 23 May-19	Protocol: OCSPP 850.4150 Plant Vegetative Vigor	Diluent:		
Ending Date: 24 Mar-20 14:34	Species: Malus domestica (Apple)	Brine:		
Test Length: 306d 15h	Taxon:	Source:	Immo Herbst Pflanzenkonto	Age:
Data Transform	Alt Hyp	Comparison Result		
Untransformed	C > T	0.000513lbs ae/A passed survival		
Fisher Exact Test				
Control	vs	Group	Test Stat	P-Type
Negative Control		0.000513	1.000	Exact
				P-Value
				1.0000
				Decision(α :5%)
				Non-Significant Effect
Data Summary				
Conc-lbs ae/A	Code	NR	R	NR + R
0	N	20	0	20
0.000513		20	0	20
				Prop NR
				1
				Prop R
				0
				%Effect
				0.0%
				0.0%

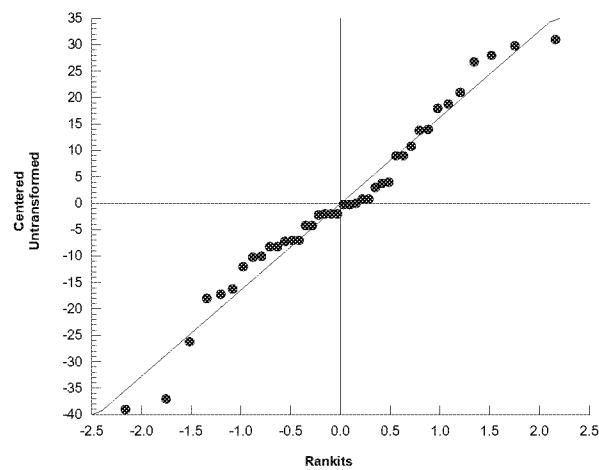
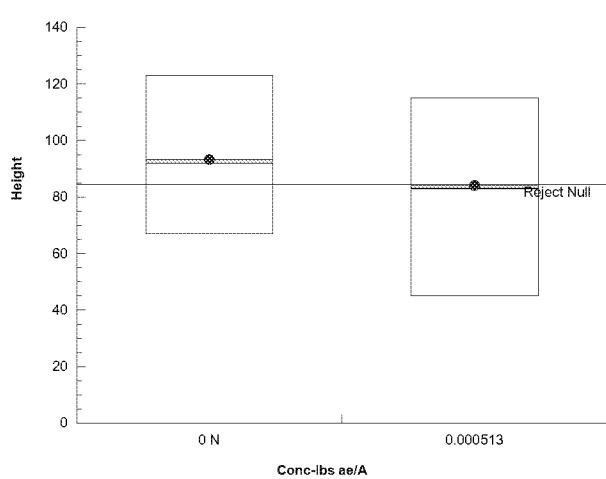
Graphics



CETIS Analytical Report

Report Date: 24 Mar-20 15:35 (p 1 of 5)
 Test Code/ID: 51068202 apple / 18-2011-0371

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection			
Analysis ID: 11-6130-7256 Analyzed: 24 Mar-20 15:33		Endpoint: Height Analysis: Parametric-Two Sample			CETIS Version: CETISv1.9.5 Status Level: 1					
Batch ID: 16-1430-5322	Test Type: Vegetative Vigor Tier II				Analyst:					
Start Date: 23 May-19	Protocol: OCSPP 850.4150 Plant Vegetative Vigor				Diluent:					
Ending Date: 24 Mar-20 14:34	Species: Malus domestica (Apple)				Brine:					
Test Length: 306d 15h	Taxon:				Source: Immo Herbst Pflanzenkonto		Age:			
Data Transform	Alt Hyp			Comparison Result			PMSD			
Untransformed	C > T			0.000513lbs ae/A failed height			9.42%			
Equal Variance t Two-Sample Test										
Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value		
Negative Control		0.000513*	1.77	1.69	8.79	38	CDF	0.0428		
ANOVA Table										
Source	Sum Squares		Mean Square		DF	F Stat		P-Value		
Between	846.4		846.4		1	3.12		0.0855		
Error	10318.7		271.545		38					
Total	11165.1				39					
ANOVA Assumptions Tests										
Attribute	Test			Test Stat	Critical	P-Value	Decision(α :5%)			
Variance	Variance Ratio F Test			1.67	3.43	0.2699	Equal Variances			
Distribution	Shapiro-Wilk W Normality Test			0.968	0.924	0.3219	Normal Distribution			
Height Summary										
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max		
0	N	20	93.2	86.6	99.9	92	67	123		
0.000513		20	84	75.4	92.7	83	45	115		
Graphics										



CETIS Analytical Report

Report Date: 24 Mar-20 15:35 (p 2 of 5)
 Test Code/ID: 51068202 apple / 18-2011-0371

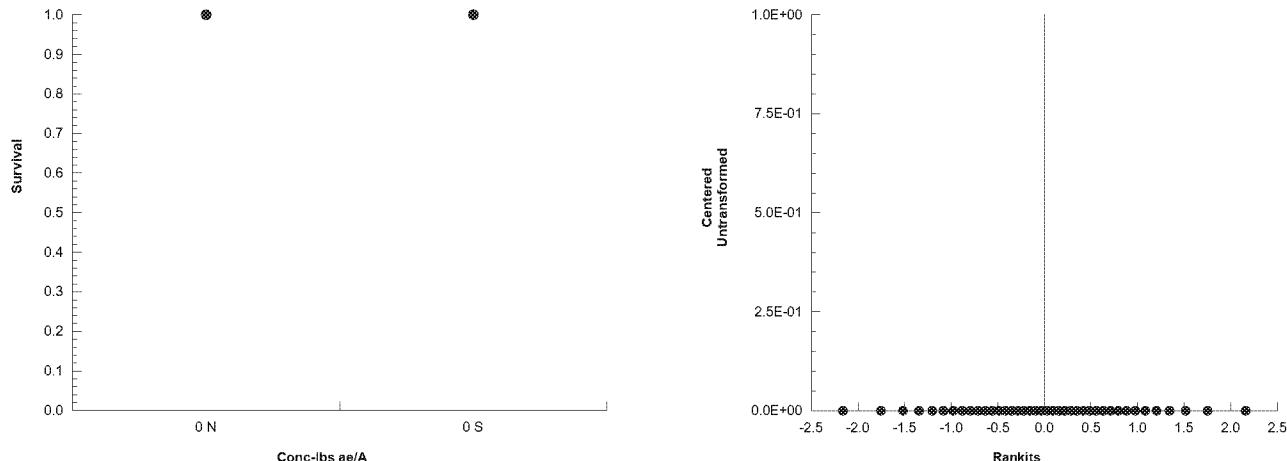
OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)						Bayer AG, Crop Protection					
Analysis ID:		12-2226-8469	Endpoint:		Height	CETIS Version:		CETISv1.9.5			
Analyzed:		24 Mar-20 15:33	Analysis:		Parametric-Two Sample	Status Level:		1			
Batch ID:	16-1430-5322	Test Type:	Vegetative Vigor Tier II		Analyst:						
Start Date:	23 May-19	Protocol:	OCSPP 850.4150 Plant Vegetative Vigor		Diluent:						
Ending Date:	24 Mar-20 14:34	Species:	Malus domestica (Apple)		Brine:						
Test Length:	306d 15h	Taxon:			Source:	Immo Herbst Pflanzenkonto					
Data Transform		Alt Hyp			Comparison Result			PMSD			
Untransformed		C <> T			Solvent Blank passed height			11.06%			
Equal Variance t Two-Sample Test											
Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision($\alpha:5\%$)		
Negative Control	Solvent Blank	2.02	2.02	10.3	38	CDF	0.0502	Non-Significant Effect			
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision($\alpha:5\%$)			
Between	1060.9		1060.9		1	4.09	0.0502	Non-Significant Effect			
Error	9854.7		259.334		38						
Total	10915.6				39						
ANOVA Assumptions Tests											
Attribute	Test			Test Stat	Critical	P-Value	Decision($\alpha:1\%$)				
Variance	Variance Ratio F Test			1.55	3.43	0.3446	Equal Variances				
Distribution	Shapiro-Wilk W Normality Test			0.982	0.924	0.7561	Normal Distribution				
Height Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	20	83	74.6	91.3	85.5	40	108	3.97	21.42%	0.00%
0	N	20	93.2	86.6	99.9	92	67	123	3.19	15.28%	-12.42%
Graphics											

CETIS Analytical Report

Report Date: 24 Mar-20 15:35 (p 3 of 5)
 Test Code/ID: 51068202 apple / 18-2011-0371

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)				Bayer AG, Crop Protection							
Analysis ID:		Endpoint: Survival	CETIS Version:		CETISv1.9.5						
Analyzed:	24 Mar-20 15:33	Analysis: Parametric-Two Sample	Status Level:		1						
Batch ID:	16-1430-5322	Test Type: Vegetative Vigor Tier II	Analyst:								
Start Date:	23 May-19	Protocol: OCSPP 850.4150 Plant Vegetative Vigor	Diluent:								
Ending Date:	24 Mar-20 14:34	Species: Malus domestica (Apple)	Brine:								
Test Length:	306d 15h	Taxon:	Source: Immo Herbst Pflanzenkonto		Age:						
Data Transform		Alt Hyp	Comparison Result								
Untransformed		C <> T	Solvent Blank passed survival								
Equal Variance t Two-Sample Test											
Control	vs	Control II	Test Stat	Critical	DF P-Type P-Value Decision(α :5%)						
Negative Control		Solvent Blank	0	2.02	38 CDF 1.0000 Non-Significant Effect						
ANOVA Table											
Source	Sum Squares		Mean Square	DF	F Stat P-Value Decision(α :5%)						
Between	0		0	1	65500 <1.0E-37 Significant Effect						
Error	0		0	38							
Total	0			39							
Survival Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	20	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%
0	N	20	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%

Graphics



CETIS Analytical Report

Report Date: 24 Mar-20 15:35 (p 4 of 5)
 Test Code/ID: 51068202 apple / 18-2011-0371

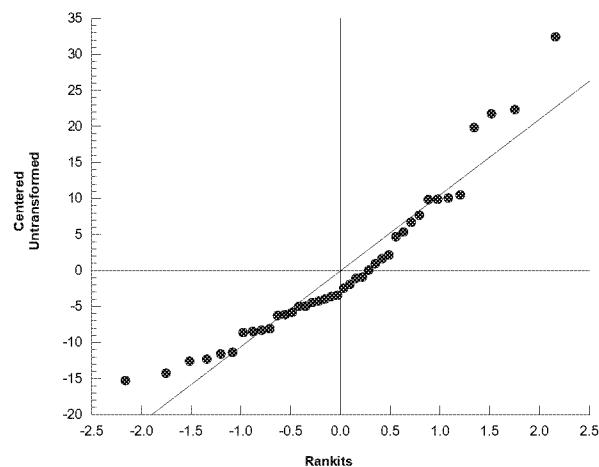
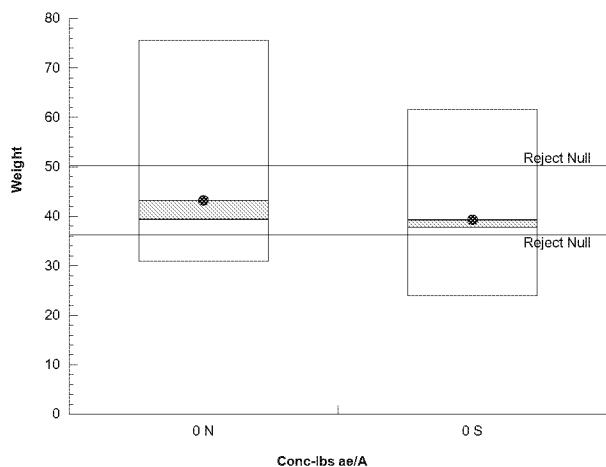
OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection				
Analysis ID:		13-3456-9853	Endpoint:		Weight	CETIS Version:		CETISv1.9.5			
Analyzed:		24 Mar-20 15:33	Analysis:		Parametric-Two Sample	Status Level:		1			
Batch ID:	16-1430-5322	Test Type:	Vegetative Vigor Tier II		Analyst:						
Start Date:	23 May-19	Protocol:	OCSPP 850.4150 Plant Vegetative Vigor		Diluent:						
Ending Date:	24 Mar-20 14:34	Species:	Malus domestica (Apple)		Brine:						
Test Length:	306d 15h	Taxon:			Source:	Immo Herbst Pflanzenkonto					
Data Transform		Alt Hyp			Comparison Result			PMSD			
Untransformed		C > T			0.000513lbs ae/A passed weight			13.42%			
Equal Variance t Two-Sample Test											
Control	vs	Conc-lbs ae/	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α :5%)		
Negative Control		0.000513	0.351	1.69	5.8	38	CDF	0.3639	Non-Significant Effect		
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision(α :5%)			
Between	14.5444		14.5444		1	0.123	0.7277	Non-Significant Effect			
Error	4492.16		118.215		38						
Total	4506.7				39						
ANOVA Assumptions Tests											
Attribute	Test			Test Stat	Critical	P-Value	Decision(α :1%)				
Variance	Variance Ratio F Test			1.06	3.43	0.9024	Equal Variances				
Distribution	Shapiro-Wilk W Normality Test			0.939	0.924	0.0315	Normal Distribution				
Weight Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	43.2	38	48.4	39.4	30.9	75.6	2.47	25.52%	0.00%
0.000513		20	42	37	47	41	25.9	61.4	2.4	25.52%	2.79%
Graphics											

CETIS Analytical Report

Report Date: 24 Mar-20 15:35 (p 5 of 5)
 Test Code/ID: 51068202 apple / 18-2011-0371

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection				
Analysis ID: 00-0594-4131 Analyzed: 24 Mar-20 15:33		Endpoint: Weight Analysis: Parametric-Two Sample			CETIS Version: CETISv1.9.5 Status Level: 1						
Batch ID: 16-1430-5322 Start Date: 23 May-19 Ending Date: 24 Mar-20 14:34 Test Length: 306d 15h	Test Type: Vegetative Vigor Tier II Protocol: OCSPP 850.4150 Plant Vegetative Vigor Species: Malus domestica (Apple) Taxon:			Analyst: Diluent: Brine: Source: Immo Herbst Pflanzenkonto Age:							
Data Transform	Alt Hyp			Comparison Result			PMSD				
Untransformed	C <> T			Solvent Blank passed weight			16.17%				
Equal Variance t Two-Sample Test											
Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α :5%)		
Negative Control	Solvent Blank		1.14	2.02	6.99	38	CDF	0.2622	Non-Significant Effect		
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat		P-Value	Decision(α :5%)		
Between	154.253		154.253		1	1.3		0.2622	Non-Significant Effect		
Error	4524.85		119.075		38						
Total	4679.1				39						
ANOVA Assumptions Tests											
Attribute	Test			Test Stat	Critical	P-Value	Decision(α :1%)				
Variance	Variance Ratio F Test			1.04	3.43	0.9278	Equal Variances				
Distribution	Shapiro-Wilk W Normality Test			0.917	0.924	0.0064	Non-Normal Distribution				
Weight Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	20	39.3	34.2	44.3	37.8	24	61.6	2.41	27.49%	0.00%
0	N	20	43.2	38	48.4	39.4	30.9	75.6	2.47	25.52%	-10.00%

Graphics

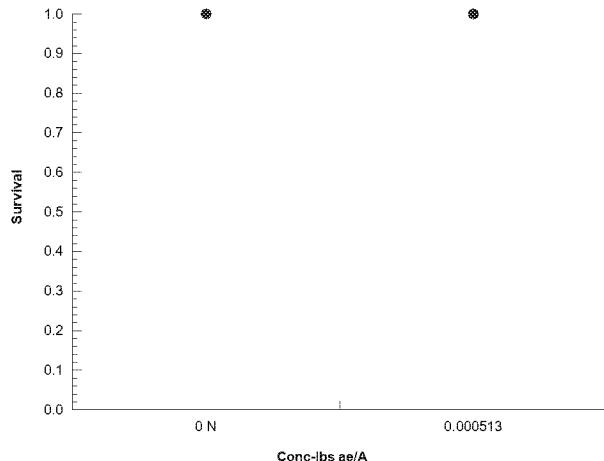


CETIS Analytical Report

Report Date: 24 Mar-20 15:40 (p 1 of 1)
Test Code/ID: 51068202 cherry / 18-4533-9821

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)				Bayer AG, Crop Protection
Analysis ID: 09-1996-4246	Endpoint: Survival	CETIS Version:	CETISv1.9.5	
Analyzed: 24 Mar-20 15:36	Analysis: Single 2x2 Contingency Table	Status Level:	1	
Batch ID: 05-4487-1130	Test Type: Vegetative Vigor Tier II	Analyst:		
Start Date: 23 May-19	Protocol: OCSPP 850.4150 Plant Vegetative Vigor	Diluent:		
Ending Date: 24 Mar-20 14:34	Species: Prunus avium (Cherry)	Brine:		
Test Length: 306d 15h	Taxon:	Source:	Immo Herbst Pflanzenkonto	Age:
Data Transform	Alt Hyp	Comparison Result		
Untransformed	C > T	0.000513lbs ae/A passed survival		
Fisher Exact Test				
Control	vs	Group	Test Stat	P-Type
Negative Control		0.000513	1.000	Exact
				P-Value
				1.0000
				Decision(α :5%)
				Non-Significant Effect
Data Summary				
Conc-lbs ae/A	Code	NR	R	NR + R
0	N	20	0	20
0.000513		20	0	20
				Prop NR
				1
				Prop R
				0
				%Effect
				0.0%
				0.0%

Graphics



CETIS Analytical Report

Report Date: 24 Mar-20 15:39 (p 1 of 5)
 Test Code/ID: 51068202 cherry / 18-4533-9821

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection				
Analysis ID:		Endpoint: Height			CETIS Version:		CETISv1.9.5				
Analyzed:		Analysis: Parametric-Two Sample			Status Level:		1				
Batch ID:	05-4487-1130	Test Type: Vegetative Vigor Tier II			Analyst:						
Start Date:	23 May-19	Protocol: OCSPP 850.4150 Plant Vegetative Vigor			Diluent:						
Ending Date:	24 Mar-20 14:34	Species: Prunus avium (Cherry)			Brine:						
Test Length:	306d 15h	Taxon:			Source: Immo Herbst Pflanzenkonto						
Data Transform		Alt Hyp			Comparison Result			PMSD			
Untransformed		C > T			0.000513lbs ae/A passed height			11.08%			
Equal Variance t Two-Sample Test											
Control	vs	Conc-lbs ae/	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision($\alpha:5\%$)		
Negative Control		0.000513	0.0578	1.69	19	38	CDF	0.4771	Non-Significant Effect		
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat		P-Value	Decision($\alpha:5\%$)		
Between	4.225		4.225		1	0.00334		0.9542	Non-Significant Effect		
Error	48118.6		1266.28		38						
Total	48122.8				39						
ANOVA Assumptions Tests											
Attribute	Test			Test Stat	Critical	P-Value	Decision($\alpha:1\%$)				
Variance	Variance Ratio F Test			1.15	3.43	0.7607	Equal Variances				
Distribution	Shapiro-Wilk W Normality Test			0.959	0.924	0.1511	Normal Distribution				
Height Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	171	155	187	169	117	224	7.67	20.03%	0.00%
0.000513		20	171	153	188	173	64	223	8.23	21.58%	0.38%
Graphics											

CETIS Analytical Report

Report Date: 24 Mar-20 15:39 (p 2 of 5)
 Test Code/ID: 51068202 cherry / 18-4533-9821

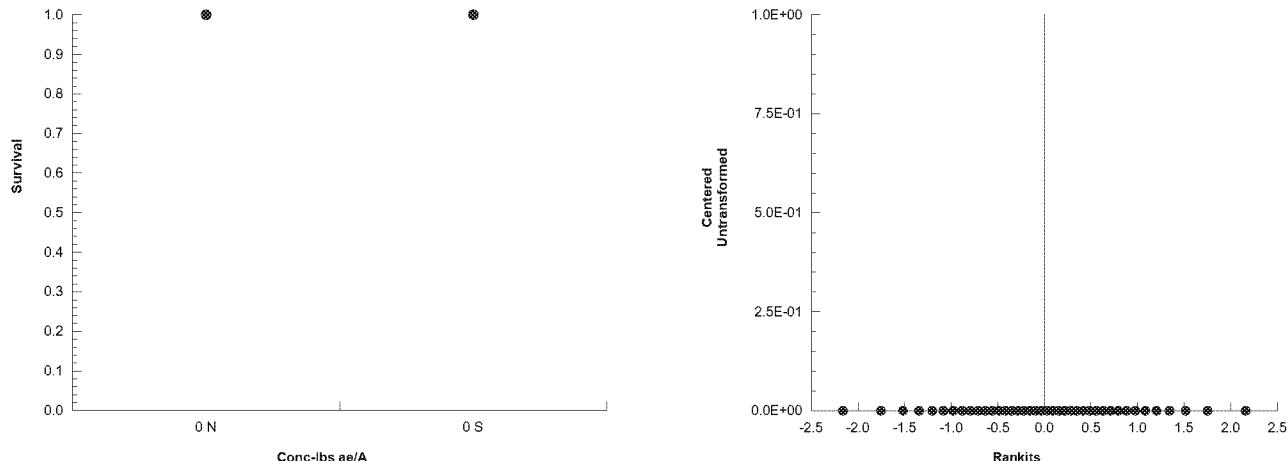
OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection	
Analysis ID:		17-3751-3481	Endpoint:		Height	CETIS Version:		CETISv1.9.5
Analyzed:		24 Mar-20 15:36	Analysis:		Parametric-Two Sample	Status Level:		1
Batch ID:	05-4487-1130	Test Type:	Vegetative Vigor Tier II		Analyst:			
Start Date:	23 May-19	Protocol:	OCSPP 850.4150 Plant Vegetative Vigor		Diluent:			
Ending Date:	24 Mar-20 14:34	Species:	Prunus avium (Cherry)		Brine:			
Test Length:	306d 15h	Taxon:			Source:	Immo Herbst Pflanzenkonto		
Data Transform		Alt Hyp		Comparison Result			PMSD	
Untransformed		C <> T		Solvent Blank passed height			12.66%	
Equal Variance t Two-Sample Test								
Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value
Negative Control	Solvent Blank	0.416	2.02	21.7	38	CDF	0.6800	Non-Significant Effect
ANOVA Table								
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	198.025		198.025		1	0.173	0.6800	Non-Significant Effect
Error	43565.9		1146.47		38			
Total	43764				39			
ANOVA Assumptions Tests								
Attribute	Test			Test Stat	Critical	P-Value	Decision($\alpha:1\%$)	
Variance	Variance Ratio F Test			1.05	3.43	0.9096	Equal Variances	
Distribution	Shapiro-Wilk W Normality Test			0.97	0.924	0.3543	Normal Distribution	
Height Summary								
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max
0	S	20	176	160	191	180	86	220
0	N	20	171	155	187	169	117	224
Graphics								

CETIS Analytical Report

Report Date: 24 Mar-20 15:39 (p 3 of 5)
 Test Code/ID: 51068202 cherry / 18-4533-9821

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)				Bayer AG, Crop Protection							
Analysis ID:		Endpoint: Survival	CETIS Version:		CETISv1.9.5						
Analyzed:	24 Mar-20 15:36	Analysis: Parametric-Two Sample	Status Level:		1						
Batch ID:	05-4487-1130	Test Type: Vegetative Vigor Tier II	Analyst:								
Start Date:	23 May-19	Protocol: OCSPP 850.4150 Plant Vegetative Vigor	Diluent:								
Ending Date:	24 Mar-20 14:34	Species: Prunus avium (Cherry)	Brine:								
Test Length:	306d 15h	Taxon:	Source: Immo Herbst Pflanzenkonto		Age:						
Data Transform		Alt Hyp	Comparison Result								
Untransformed		C <> T	Solvent Blank passed survival								
Equal Variance t Two-Sample Test											
Control	vs	Control II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α :5%)			
Negative Control		Solvent Blank	0	2.02	38	CDF	1.0000	Non-Significant Effect			
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision(α :5%)			
Between	0		0		1	65500	<1.0E-37	Significant Effect			
Error	0		0		38						
Total	0		0		39						
Survival Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	20	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%
0	N	20	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%

Graphics

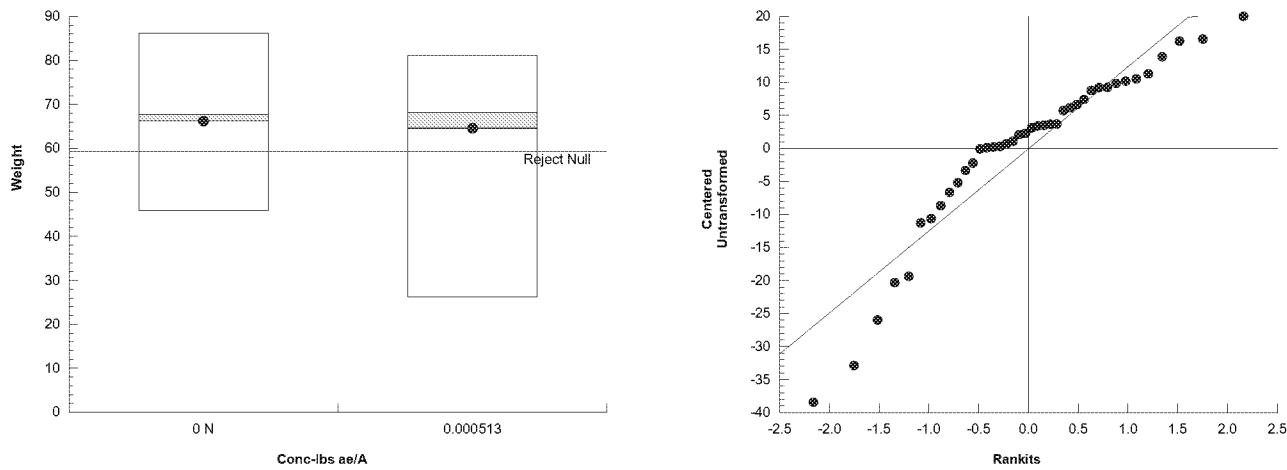


CETIS Analytical Report

Report Date: 24 Mar-20 15:39 (p 4 of 5)
 Test Code/ID: 51068202 cherry / 18-4533-9821

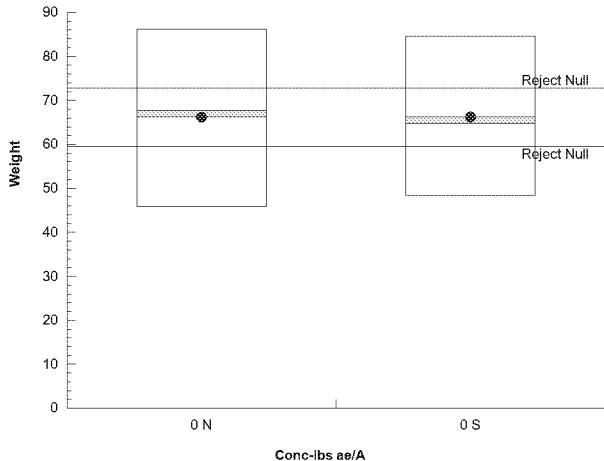
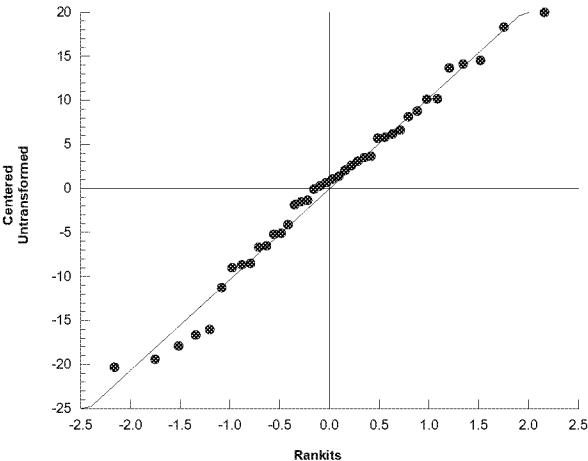
OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection			
Analysis ID:		15-2427-9255	Endpoint:		Weight	CETIS Version:		CETISv1.9.5		
Analyzed:		24 Mar-20 15:36	Analysis:		Parametric-Two Sample	Status Level:		1		
Batch ID:	05-4487-1130	Test Type:	Vegetative Vigor Tier II		Analyst:					
Start Date:	23 May-19	Protocol:	OCSPP 850.4150 Plant Vegetative Vigor		Diluent:					
Ending Date:	24 Mar-20 14:34	Species:	Prunus avium (Cherry)		Brine:					
Test Length:	306d 15h	Taxon:			Source:	Immo Herbst Pflanzenkonto				
Data Transform		Alt Hyp			Comparison Result			PMSD		
Untransformed		C > T			0.000513lbs ae/A passed weight			10.52%		
Equal Variance t Two-Sample Test										
Control	vs	Conc-lbs ae/	Test Stat	Critical	MSD	DF	P-Type	P-Value		
Negative Control		0.000513	0.388	1.69	6.96	38	CDF	0.3502		
ANOVA Table										
Source	Sum Squares		Mean Square		DF	F Stat		P-Value		
Between	25.616		25.616		1	0.15		0.7005		
Error	6478.94		170.498		38					
Total	6504.55				39					
ANOVA Assumptions Tests										
Attribute	Test			Test Stat	Critical	P-Value	Decision(α :5%)			
Variance	Variance Ratio F Test			2.6	3.43	0.0433	Equal Variances			
Distribution	Shapiro-Wilk W Normality Test			0.896	0.924	0.0014	Non-Normal Distribution			
Weight Summary										
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max		
0	N	20	66.2	61.6	70.7	67.7	45.8	86.2		
0.000513		20	64.6	57.2	71.9	68.1	26.1	81.1		
%Std Err CV% %Effect										
0.000513							2.18	14.70%		
							3.51	24.31%		
								0.00%		
								2.42%		

Graphics



CETIS Analytical Report

Report Date: 24 Mar-20 15:39 (p 5 of 5)
 Test Code/ID: 51068202 cherry / 18-4533-9821

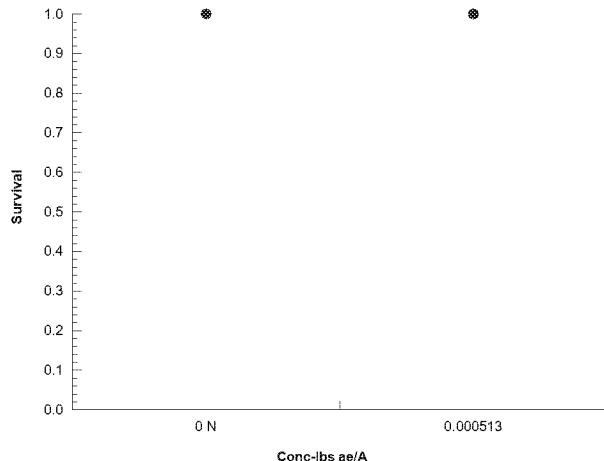
OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection				
Analysis ID:		04-6551-5722	Endpoint:		Weight	CETIS Version:		CETISv1.9.5			
Analyzed:		24 Mar-20 15:36	Analysis:		Parametric-Two Sample	Status Level:		1			
Batch ID:	05-4487-1130	Test Type:	Vegetative Vigor Tier II	Analyst:		Diluent:					
Start Date:	23 May-19	Protocol:	OCSPP 850.4150 Plant Vegetative Vigor	Species:	Prunus avium (Cherry)	Brine:					
Ending Date:	24 Mar-20 14:34	Taxon:		Source:	Immo Herbst Pflanzenkonto	Age:					
Test Length:	306d 15h										
Data Transform		Alt Hyp		Comparison Result			PMSD				
Untransformed		C <> T		Solvent Blank passed weight			9.98%				
Equal Variance t Two-Sample Test											
Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision($\alpha:5\%$)		
Negative Control	Solvent Blank		0.0146	2.02	6.6	38	CDF	0.9885	Non-Significant Effect		
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat		P-Value	Decision($\alpha:5\%$)		
Between	0.0225625		0.0225625		1	0.000212		0.9885	Non-Significant Effect		
Error	4043.34		106.404		38						
Total	4043.36				39						
ANOVA Assumptions Tests											
Attribute	Test			Test Stat	Critical	P-Value	Decision($\alpha:1\%$)				
Variance	Variance Ratio F Test			1.25	3.43	0.6331	Equal Variances				
Distribution	Shapiro-Wilk W Normality Test			0.98	0.924	0.6748	Normal Distribution				
Weight Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	20	66.2	61.1	71.3	64.8	48.3	84.5	2.43	16.42%	0.00%
0	N	20	66.2	61.6	70.7	67.7	45.8	86.2	2.18	14.70%	0.07%
Graphics											
											

CETIS Analytical Report

Report Date: 24 Mar-20 15:17 (p 1 of 1)
Test Code/ID: 51068202 london / 11-2417-2417

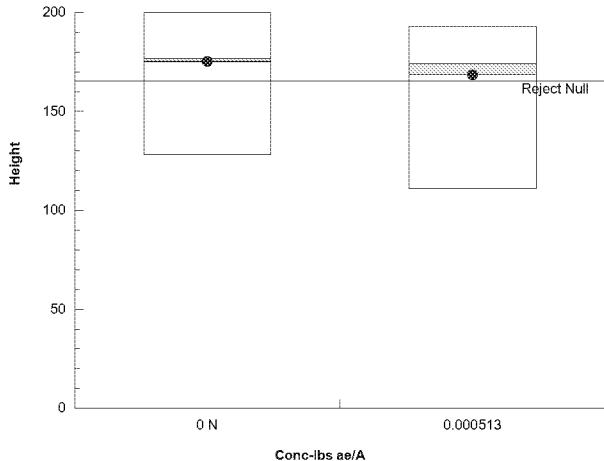
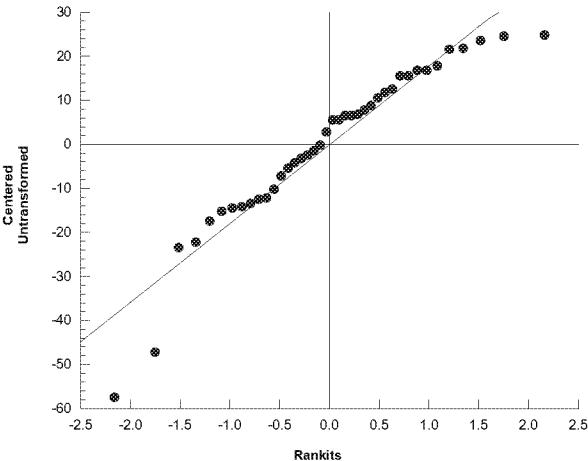
OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)				Bayer AG, Crop Protection
Analysis ID: 13-5066-8775	Endpoint: Survival	CETIS Version: CETISv1.9.5		
Analyzed: 24 Mar-20 15:14	Analysis: Single 2x2 Contingency Table	Status Level: 1		
Batch ID: 01-5570-2761	Test Type: Vegetative Vigor Tier II	Analyst:		
Start Date: 23 May-19	Protocol: OCSPP 850.4150 Plant Vegetative Vigor	Diluent:		
Ending Date:	Species: Platanus acerifolia (London Plane)	Brine:		
Test Length: n/a	Taxon:	Source: Immo Herbst Pflanzenkonto	Age:	
Data Transform	Alt Hyp	Comparison Result		
Untransformed	C > T	0.000513lbs ae/A passed survival		
Fisher Exact Test				
Control	vs	Group	Test Stat	P-Type
Negative Control		0.000513	1.000	Exact
				P-Value: 1.0000
				Decision(α :5%): Non-Significant Effect
Data Summary				
Conc-lbs ae/A	Code	NR	R	NR + R
0	N	20	0	20
0.000513		20	0	20
				Prop NR: 1
				Prop R: 0
				%Effect: 0.0%

Graphics



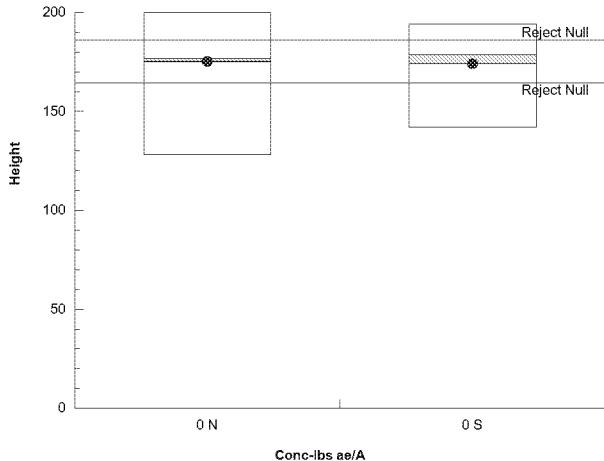
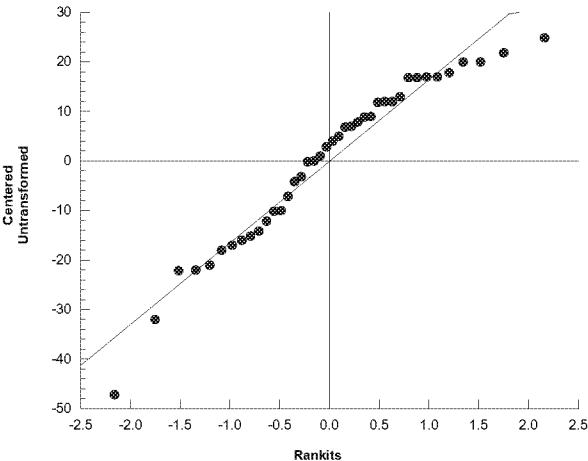
CETIS Analytical Report

Report Date: 24 Mar-20 15:16 (p 1 of 5)
 Test Code/ID: 51068202 london / 11-2417-2417

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection				
Analysis ID:		10-7944-7351	Endpoint:		Height		CETIS Version:		CETISv1.9.5		
Analyzed:		24 Mar-20 15:14	Analysis:		Parametric-Two Sample		Status Level:		1		
Batch ID:	01-5570-2761	Test Type:		Vegetative Vigor Tier II		Analyst:					
Start Date:	23 May-19	Protocol:		OCSPP 850.4150 Plant Vegetative Vigor		Diluent:					
Ending Date:		Species:		Platanus acerifolia (London Plane)		Brine:					
Test Length:	n/a	Taxon:		Source:		Immo Herbst Pflanzenkonto		Age:			
Data Transform		Alt Hyp		Comparison Result				PMSD			
Untransformed		C > T		0.000513lbs ae/A passed height				5.64%			
Equal Variance t Two-Sample Test											
Control	vs	Conc-lbs ae/	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α :5%)		
Negative Control		0.000513	1.15	1.69	9.88	38	CDF	0.1283	Non-Significant Effect		
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat		P-Value	Decision(α :5%)		
Between	455.625		455.625		1	1.33		0.2566	Non-Significant Effect		
Error	13048.2		343.372		38						
Total	13503.8				39						
ANOVA Assumptions Tests											
Attribute	Test			Test Stat	Critical	P-Value		Decision(α :1%)			
Variance	Variance Ratio F Test			1.25	3.43	0.6269		Equal Variances			
Distribution	Shapiro-Wilk W Normality Test			0.922	0.924	0.0087		Non-Normal Distribution			
Height Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	175	167	183	176	128	200	3.9	9.96%	0.00%
0.000513		20	168	159	178	174	111	193	4.37	11.60%	3.85%
Graphics											
											

CETIS Analytical Report

Report Date: 24 Mar-20 15:16 (p 2 of 5)
 Test Code/ID: 51068202 london / 11-2417-2417

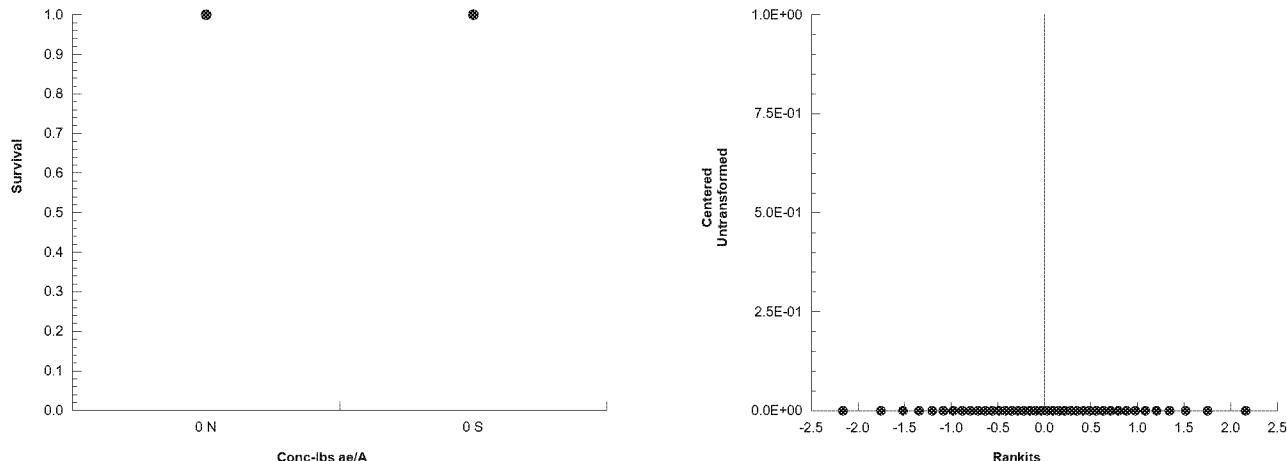
OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection				
Analysis ID:		Endpoint: Height			CETIS Version:		CETISv1.9.5				
Analyzed:		Analysis: Parametric-Two Sample			Status Level:		1				
Batch ID:		Test Type: Vegetative Vigor Tier II			Analyst:						
Start Date:		Protocol: OCSPP 850.4150 Plant Vegetative Vigor			Diluent:						
Ending Date:		Species: Platanus acerifolia (London Plane)			Brine:						
Test Length:		Taxon:			Source: Immo Herbst Pflanzenkonto		Age:				
Data Transform		Alt Hyp			Comparison Result		PMSD				
Untransformed		C <> T			Solvent Blank passed height		6.14%				
Equal Variance t Two-Sample Test											
Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision($\alpha:5\%$)		
Negative Control		Solvent Blank	0.217	2.02	10.7	38	CDF	0.8297	Non-Significant Effect		
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat		P-Value	Decision($\alpha:5\%$)		
Between	13.225		13.225		1	0.0469		0.8297	Non-Significant Effect		
Error	10714.2		281.951		38						
Total	10727.4				39						
ANOVA Assumptions Tests											
Attribute	Test			Test Stat	Critical	P-Value	Decision($\alpha:1\%$)				
Variance	Variance Ratio F Test			1.18	3.43	0.7282	Equal Variances				
Distribution	Shapiro-Wilk W Normality Test			0.948	0.924	0.0661	Normal Distribution				
Height Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	20	174	167	182	178	142	194	3.6	9.25%	0.00%
0	N	20	175	167	183	176	128	200	3.9	9.96%	-0.66%
Graphics											
											

CETIS Analytical Report

Report Date: 24 Mar-20 15:16 (p 3 of 5)
 Test Code/ID: 51068202 london / 11-2417-2417

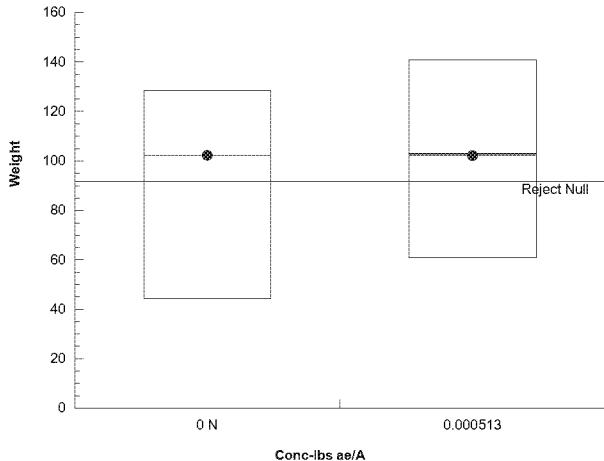
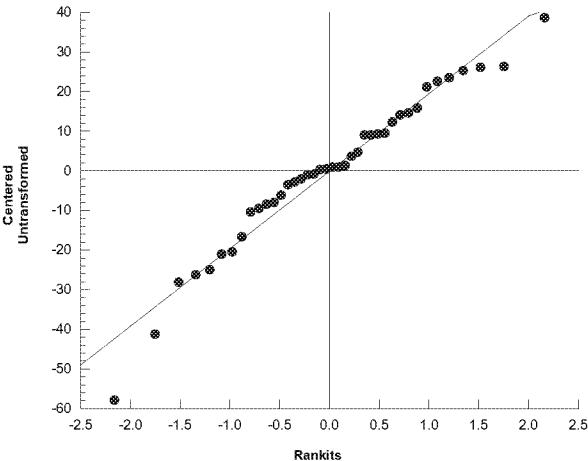
OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)				Bayer AG, Crop Protection							
Analysis ID: 10-6155-7749 Analyzed: 24 Mar-20 15:14		Endpoint: Survival Analysis: Parametric-Two Sample		CETIS Version: CETISv1.9.5 Status Level: 1							
Batch ID: 01-5570-2761	Test Type: Vegetative Vigor Tier II		Analyst:								
Start Date: 23 May-19	Protocol: OCSPP 850.4150 Plant Vegetative Vigor		Diluent:								
Ending Date:	Species: Platanus acerifolia (London Plane)		Brine:								
Test Length: n/a	Taxon:		Source: Immo Herbst Pflanzenkonto Age:								
Data Transform		Alt Hyp		Comparison Result							
Untransformed		C <> T		Solvent Blank passed survival							
Equal Variance t Two-Sample Test											
Control	vs	Control II	Test Stat	Critical	DF P-Type P-Value Decision(α :5%)						
Negative Control	Solvent Blank	0	2.02	38 CDF	1.0000 Non-Significant Effect						
ANOVA Table											
Source	Sum Squares		Mean Square	DF	F Stat P-Value Decision(α :5%)						
Between	0		0	1	65500 <1.0E-37 Significant Effect						
Error	0		0	38							
Total	0			39							
Survival Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	20	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%
0	N	20	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%

Graphics



CETIS Analytical Report

Report Date: 24 Mar-20 15:16 (p 4 of 5)
 Test Code/ID: 51068202 london / 11-2417-2417

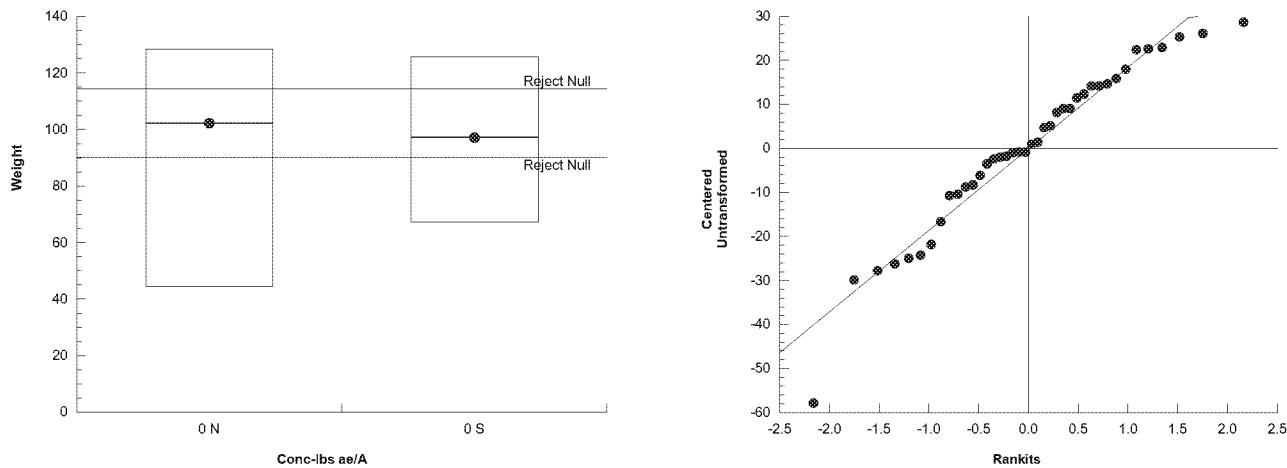
OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection	
Analysis ID:		19-5496-5583	Endpoint:		Weight	CETIS Version:		CETISv1.9.5
Analyzed:		24 Mar-20 15:14	Analysis:		Parametric-Two Sample	Status Level:		1
Batch ID:	01-5570-2761	Test Type:	Vegetative Vigor Tier II		Analyst:			
Start Date:	23 May-19	Protocol:	OCSPP 850.4150 Plant Vegetative Vigor		Diluent:			
Ending Date:		Species:	Platanus acerifolia (London Plane)		Brine:			
Test Length:	n/a	Taxon:			Source:	Immo Herbst Pflanzenkonto		
Data Transform	Alt Hyp		Comparison Result				PMSD	
Untransformed	C > T		0.000513lbs ae/A passed weight				10.33%	
Equal Variance t Two-Sample Test								
Control	vs	Conc-lbs ae/	Test Stat	Critical	MSD	DF	P-Type	P-Value
Negative Control		0.000513	0.0134	1.69	10.6	38	CDF	0.4947
ANOVA Table								
Source	Sum Squares		Mean Square		DF	F Stat		P-Value
Between	0.07056		0.07056		1	0.00018		0.9894
Error	14896		391.999		38			
Total	14896				39			
ANOVA Assumptions Tests								
Attribute	Test			Test Stat	Critical	P-Value	Decision(α :5%)	
Variance	Variance Ratio F Test			1.13	3.43	0.7874	Equal Variances	
Distribution	Shapiro-Wilk W Normality Test			0.967	0.924	0.2936	Normal Distribution	
Weight Summary								
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max
0	N	20	102	92.6	112	102	44.3	128
0.000513		20	102	93.1	111	103	60.9	141
Graphics								
								

CETIS Analytical Report

Report Date: 24 Mar-20 15:16 (p 5 of 5)
 Test Code/ID: 51068202 london / 11-2417-2417

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection				
Analysis ID:		13-3277-1050	Endpoint:		Weight	CETIS Version:		CETISv1.9.5			
Analyzed:		24 Mar-20 15:14	Analysis:		Parametric-Two Sample	Status Level:		1			
Batch ID:		01-5570-2761	Test Type:		Vegetative Vigor Tier II	Analyst:					
Start Date:		23 May-19	Protocol:		OCSPP 850.4150 Plant Vegetative Vigor	Diluent:					
Ending Date:			Species:		Platanus acerifolia (London Plane)	Brine:					
Test Length:		n/a	Taxon:			Source:		Immo Herbst Pflanzenkonto			
Data Transform		Alt Hyp	Comparison Result					PMSD			
Untransformed		C <> T	Solvent Blank passed weight					11.82%			
Equal Variance t Two-Sample Test											
Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision($\alpha:5\%$)		
Negative Control	Solvent Blank	0.856	2.02	12.1	38	CDF	0.3974		Non-Significant Effect		
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision($\alpha:5\%$)			
Between	260.917		260.917		1	0.732	0.3974	Non-Significant Effect			
Error	13535.8		356.205		38						
Total	13796.7				39						
ANOVA Assumptions Tests											
Attribute	Test			Test Stat	Critical	P-Value	Decision($\alpha:1\%$)				
Variance	Variance Ratio F Test			1.41	3.43	0.4628	Equal Variances				
Distribution	Shapiro-Wilk W Normality Test			0.951	0.924	0.0805	Normal Distribution				
Weight Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	20	97.1	89	105	97.4	67.2	126	3.85	17.72%	0.00%
0	N	20	102	92.6	112	102	44.3	128	4.56	19.97%	-5.26%

Graphics

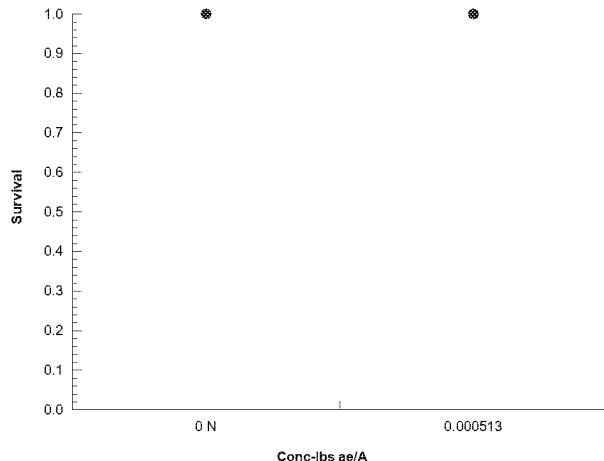


CETIS Analytical Report

Report Date: 24 Mar-20 15:45 (p 1 of 1)
Test Code/ID: 51068202 red oa / 19-5492-7402

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)				Bayer AG, Crop Protection
Analysis ID: 05-8642-8036	Endpoint: Survival	CETIS Version:	CETISv1.9.5	
Analyzed: 24 Mar-20 15:41	Analysis: Single 2x2 Contingency Table	Status Level:	1	
Batch ID: 13-0965-8920	Test Type: Vegetative Vigor Tier II	Analyst:		
Start Date: 23 May-19	Protocol: OCSPP 850.4150 Plant Vegetative Vigor	Diluent:		
Ending Date: 24 Mar-20 14:34	Species: Quercus rubra (Northern Red Oak)	Brine:		
Test Length: 306d 15h	Taxon:	Source:	Immo Herbst Pflanzenkonto	Age:
Data Transform	Alt Hyp	Comparison Result		
Untransformed	C > T	0.000513lbs ae/A passed survival		
Fisher Exact Test				
Control	vs	Group	Test Stat	P-Type
Negative Control		0.000513	1.000	Exact
				P-Value
				1.0000
				Decision(α :5%)
				Non-Significant Effect
Data Summary				
Conc-lbs ae/A	Code	NR	R	NR + R
0	N	20	0	20
0.000513		20	0	20
				Prop NR
				Prop R
				%Effect
				0.0%
				0.0%

Graphics



CETIS Analytical Report

Report Date: 24 Mar-20 15:45 (p 1 of 5)
 Test Code/ID: 51068202 red oa / 19-5492-7402

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection	
Analysis ID:		Endpoint: Height			CETIS Version:		CETISv1.9.5	
Analyzed:		Analysis: Parametric-Two Sample			Status Level:		1	
Batch ID: 13-0965-8920		Test Type: Vegetative Vigor Tier II			Analyst:			
Start Date: 23 May-19		Protocol: OCSPP 850.4150 Plant Vegetative Vigor			Diluent:			
Ending Date: 24 Mar-20 14:34		Species: Quercus rubra (Northern Red Oak)			Brine:			
Test Length: 306d 15h		Taxon:			Source: Immo Herbst Pflanzenkonto		Age:	
Data Transform		Alt Hyp			Comparison Result		PMSD	
Untransformed		C > T			0.000513lbs ae/A failed height		11.11%	
Equal Variance t Two-Sample Test								
Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value
Negative Control		0.000513*	2.82	1.69	7.62	38	CDF	0.0038
ANOVA Table								
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision(α :5%)
Between	1625.62		1625.62		1	7.95	0.0076	Significant Effect
Error	7769.35		204.457		38			
Total	9394.98				39			
ANOVA Assumptions Tests								
Attribute	Test			Test Stat	Critical	P-Value	Decision(α :1%)	
Variance	Variance Ratio F Test			1.76	3.43	0.2259	Equal Variances	
Distribution	Shapiro-Wilk W Normality Test			0.969	0.924	0.3415	Normal Distribution	
Height Summary								
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max
0	N	20	68.6	61	76.2	65	43	104
0.000513		20	55.8	50.2	61.5	55.5	41	88
Graphics								

CETIS Analytical Report

Report Date: 24 Mar-20 15:45 (p 2 of 5)
 Test Code/ID: 51068202 red oa / 19-5492-7402

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)

Bayer AG, Crop Protection

Analysis ID:	10-3985-7851	Endpoint:	Height	CETIS Version:	CETISv1.9.5
Analyzed:	24 Mar-20 15:41	Analysis:	Parametric-Two Sample	Status Level:	1
Batch ID:	13-0965-8920	Test Type:	Vegetative Vigor Tier II	Analyst:	
Start Date:	23 May-19	Protocol:	OCSPP 850.4150 Plant Vegetative Vigor	Diluent:	
Ending Date:	24 Mar-20 14:34	Species:	Quercus rubra (Northern Red Oak)	Brine:	
Test Length:	306d 15h	Taxon:		Source:	Immo Herbst Pflanzenkonto

Data Transform	Alt Hyp	Comparison Result	PMSD
Untransformed	C <> T	Solvent Blank passed height	15.76%

Equal Variance t Two-Sample Test

Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α :5%)
Negative Control		Solvent Blank	0.506	2.02	10.8	38	CDF	0.6161	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α :5%)
Between	72.9	72.9	1	0.256	0.6161	Non-Significant Effect
Error	10836.6	285.174	38			
Total	10909.5		39			

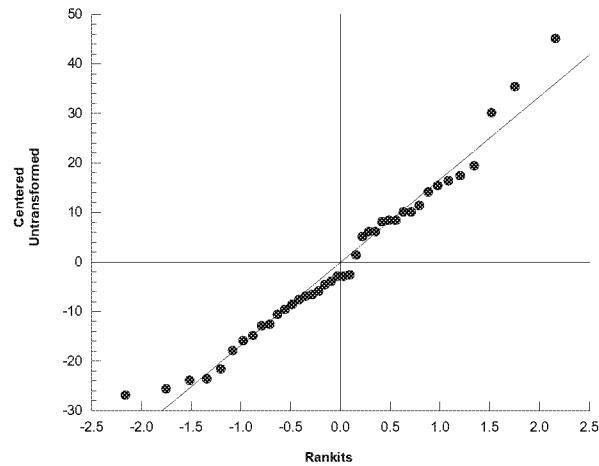
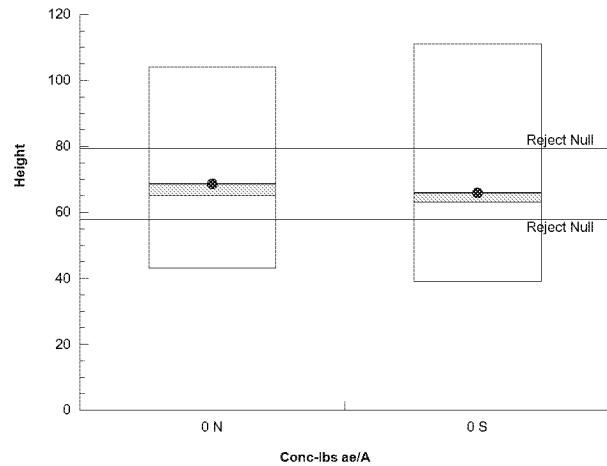
ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α :1%)
Variance	Variance Ratio F Test	1.19	3.43	0.7136	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.967	0.924	0.2928	Normal Distribution

Height Summary

Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	20	65.9	57.7	74.1	63	39	111	3.93	26.69%	0.00%
0	N	20	68.6	61	76.2	65	43	104	3.61	23.55%	-4.10%

Graphics

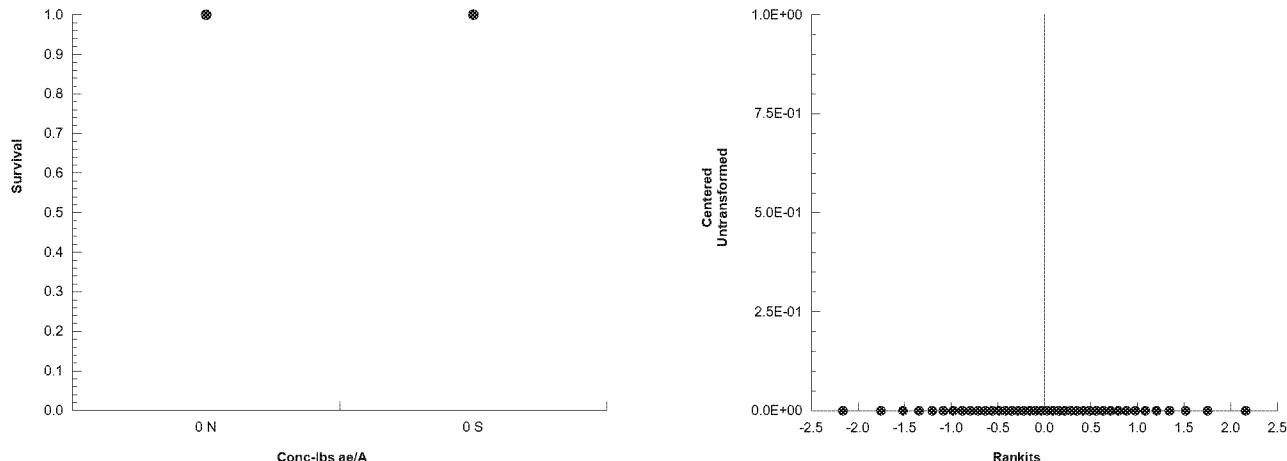


CETIS Analytical Report

Report Date: 24 Mar-20 15:45 (p 3 of 5)
 Test Code/ID: 51068202 red oa / 19-5492-7402

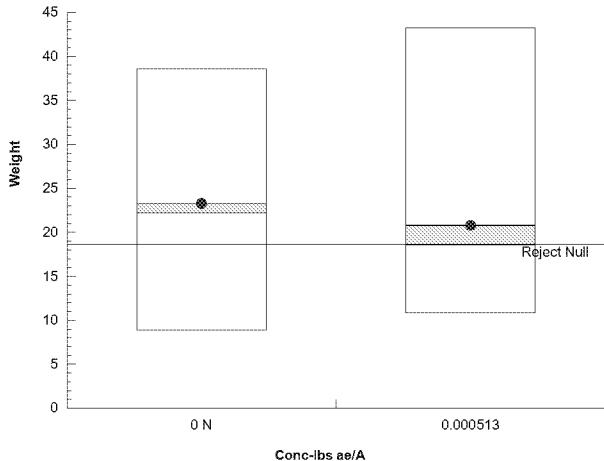
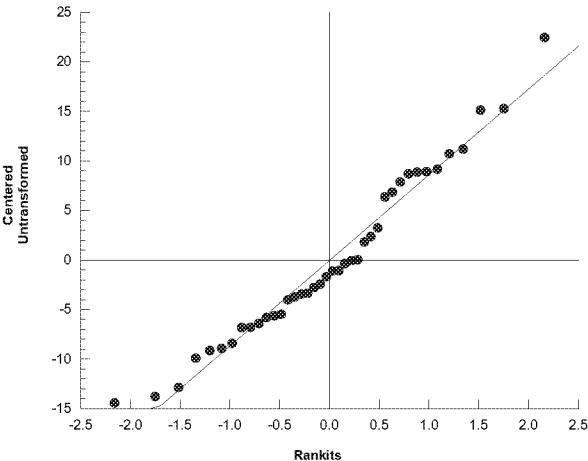
OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)				Bayer AG, Crop Protection							
Analysis ID:	06-0881-6840	Endpoint:	Survival	CETIS Version:	CETISv1.9.5						
Analyzed:	24 Mar-20 15:41	Analysis:	Parametric-Two Sample	Status Level:	1						
Batch ID:	13-0965-8920	Test Type:	Vegetative Vigor Tier II	Analyst:							
Start Date:	23 May-19	Protocol:	OCSPP 850.4150 Plant Vegetative Vigor	Diluent:							
Ending Date:	24 Mar-20 14:34	Species:	Quercus rubra (Northern Red Oak)	Brine:							
Test Length:	306d 15h	Taxon:		Source:	Immo Herbst Pflanzenkonto						
Data Transform	Alt Hyp	Comparison Result									
Untransformed	C <> T	Solvent Blank passed survival									
Equal Variance t Two-Sample Test											
Control	vs	Control II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α :5%)			
Negative Control		Solvent Blank	0	2.02	38	CDF	1.0000	Non-Significant Effect			
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision(α :5%)			
Between	0		0		1	65500	<1.0E-37	Significant Effect			
Error	0		0		38						
Total	0		0		39						
Survival Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	20	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%
0	N	20	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%

Graphics



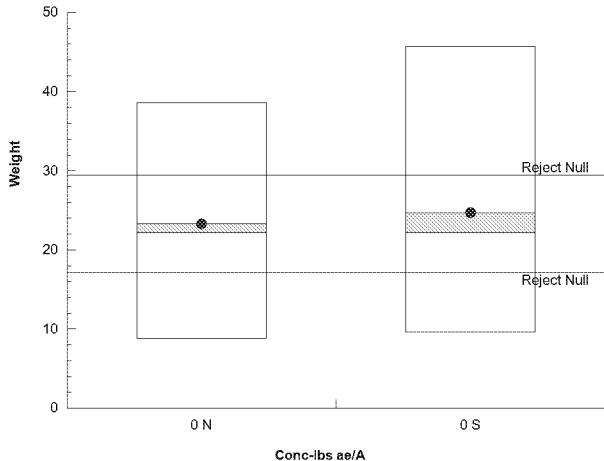
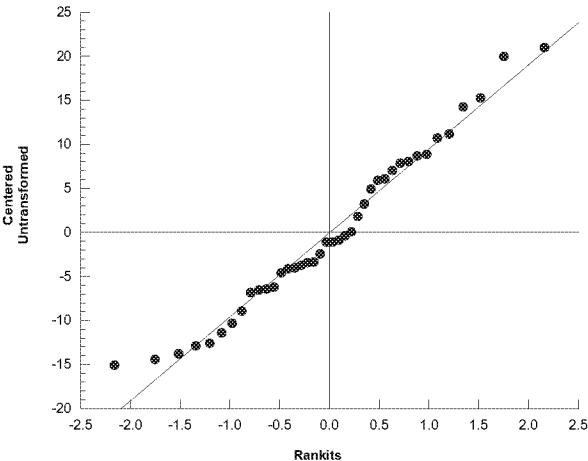
CETIS Analytical Report

Report Date: 24 Mar-20 15:45 (p 4 of 5)
 Test Code/ID: 51068202 red oa / 19-5492-7402

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection				
Analysis ID:		08-5758-5337	Endpoint:		Weight	CETIS Version:		CETISv1.9.5			
Analyzed:		24 Mar-20 15:41	Analysis:		Parametric-Two Sample	Status Level:		1			
Batch ID:	13-0965-8920	Test Type:	Vegetative Vigor Tier II	Analyst:							
Start Date:	23 May-19	Protocol:	OCSPP 850.4150 Plant Vegetative Vigor	Diluent:							
Ending Date:	24 Mar-20 14:34	Species:	Quercus rubra (Northern Red Oak)	Brine:							
Test Length:	306d 15h	Taxon:		Source:		Immo Herbst Pflanzenkonto	Age:				
Data Transform		Alt Hyp			Comparison Result			PMSD			
Untransformed		C > T			0.000513lbs ae/A passed weight			19.98%			
Equal Variance t Two-Sample Test											
Control	vs	Conc-lbs ae/	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α :5%)		
Negative Control		0.000513	0.908	1.69	4.65	38	CDF	0.1849	Non-Significant Effect		
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision(α :5%)			
Between	62.7002		62.7002		1	0.824	0.3697	Non-Significant Effect			
Error	2891.36		76.0883		38						
Total	2954.06				39						
ANOVA Assumptions Tests											
Attribute	Test			Test Stat	Critical	P-Value	Decision(α :1%)				
Variance	Variance Ratio F Test			1.1	3.43	0.8347	Equal Variances				
Distribution	Shapiro-Wilk W Normality Test			0.966	0.924	0.2628	Normal Distribution				
Weight Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	23.3	19.3	27.3	22.2	8.84	38.5	1.9	36.56%	0.00%
0.000513		20	20.8	16.6	25	18.5	10.8	43.2	2	43.00%	10.76%
Graphics											
											

CETIS Analytical Report

Report Date: 24 Mar-20 15:45 (p 5 of 5)
 Test Code/ID: 51068202 red oa / 19-5492-7402

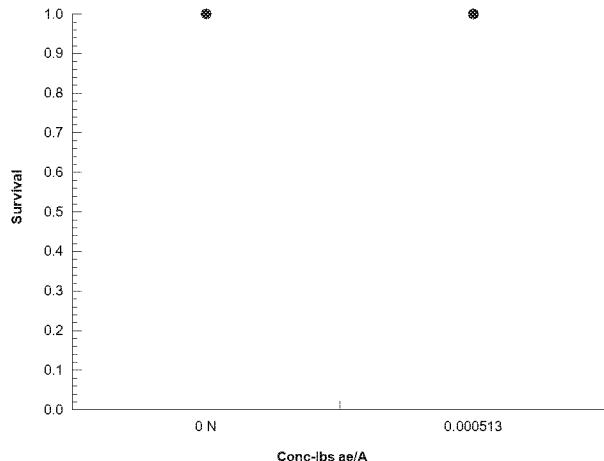
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Analysis ID:		12-1310-8849	Endpoint: Weight			CETIS Version:		CETISv1.9.5
Analyzed:		24 Mar-20 15:41	Analysis: Parametric-Two Sample			Status Level:		1
Batch ID:	13-0965-8920	Test Type:	Vegetative Vigor Tier II			Analyst:		
Start Date:	23 May-19	Protocol:	OCSPP 850.4150 Plant Vegetative Vigor			Diluent:		
Ending Date:	24 Mar-20 14:34	Species:	Quercus rubra (Northern Red Oak)			Brine:		
Test Length:	306d 15h	Taxon:				Source:	Immo Herbst Pflanzenkonto	
Data Transform		Alt Hyp			Comparison Result			PMSD
Untransformed		C <> T			Solvent Blank passed weight			26.37%
Equal Variance t Two-Sample Test								
Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value
Negative Control	Solvent Blank	0.469	2.02	6.14	38	CDF	0.6421	Non-Significant Effect
ANOVA Table								
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	20.1782		20.1782		1	0.219	0.6421	Non-Significant Effect
Error	3493.32		91.9294		38			
Total	3513.49				39			
ANOVA Assumptions Tests								
Attribute	Test			Test Stat	Critical	P-Value	Decision($\alpha:1\%$)	
Variance	Variance Ratio F Test			1.54	3.43	0.3552	Equal Variances	
Distribution	Shapiro-Wilk W Normality Test			0.968	0.924	0.3112	Normal Distribution	
Weight Summary								
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max
0	S	20	24.7	19.8	29.6	22.2	9.61	45.7
0	N	20	23.3	19.3	27.3	22.2	8.84	38.5
Graphics								
								

CETIS Analytical Report

Report Date: 24 Mar-20 20:45 (p 1 of 1)
Test Code/ID: 51068202 swamp / 05-4475-7345

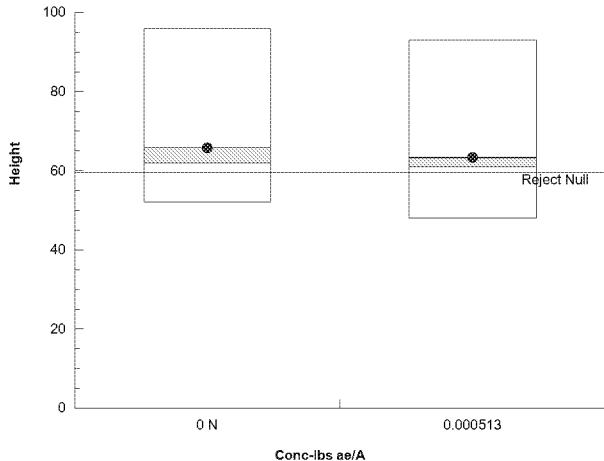
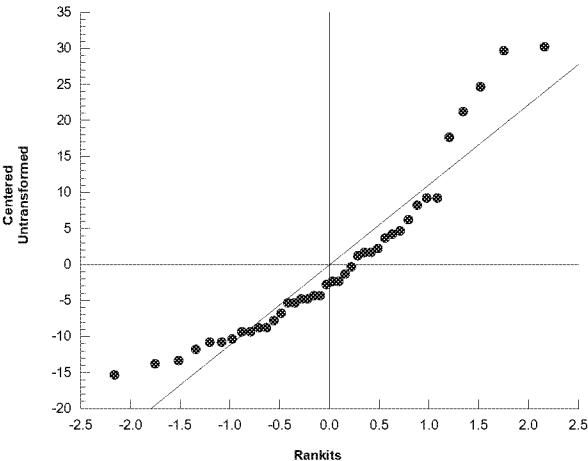
OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)				Bayer AG, Crop Protection
Analysis ID: 11-8531-1635	Endpoint: Survival	CETIS Version: CETISv1.9.5		
Analyzed: 24 Mar-20 20:44	Analysis: Single 2x2 Contingency Table	Status Level: 1		
Batch ID: 03-1389-2466	Test Type: Vegetative Vigor Tier II	Analyst:		
Start Date: 23 May-19	Protocol: OCSPP 850.4150 Plant Vegetative Vigor	Diluent:		
Ending Date: 24 Mar-20 14:34	Species: Taxodium distichum (Swamp Cypress)	Brine:		
Test Length: 306d 15h	Taxon:	Source: Immo Herbst Pflanzenkonto	Age:	
Data Transform	Alt Hyp	Comparison Result		
Untransformed	C > T	0.000513lbs ae/A passed survival		
Fisher Exact Test				
Control	vs	Group	Test Stat	P-Type
Negative Control		0.000513	1.000	Exact
				P-Value 1.0000
				Decision(α :5%) Non-Significant Effect
Data Summary				
Conc-lbs ae/A	Code	NR	R	NR + R
0	N	20	0	20
0.000513		20	0	20
				Prop NR 1
				Prop R 0
				%Effect 0.0%

Graphics



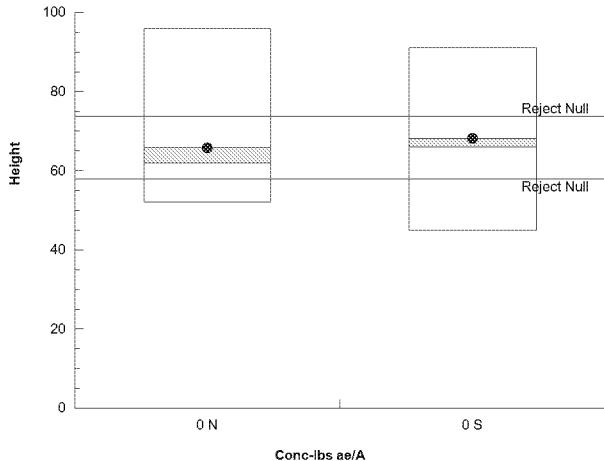
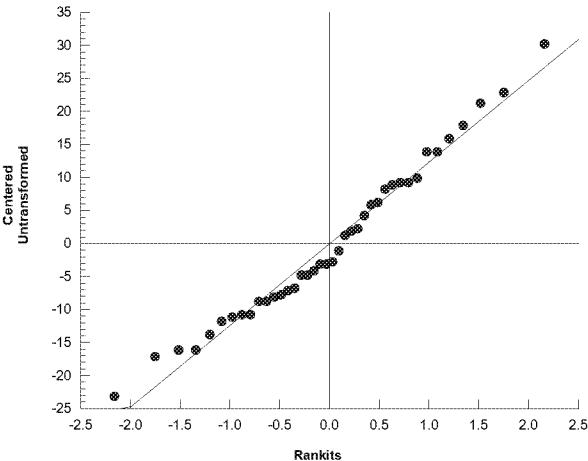
CETIS Analytical Report

Report Date: 24 Mar-20 20:45 (p 1 of 6)
 Test Code/ID: 51068202 swamp / 05-4475-7345

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection				
Analysis ID:		18-3369-4346	Endpoint: Height Analysis: Parametric-Two Sample			CETIS Version: CETISv1.9.5 Status Level: 1					
Batch ID:	03-1389-2466	Test Type:	Vegetative Vigor Tier II			Analyst:					
Start Date:	23 May-19	Protocol:	OCSPP 850.4150 Plant Vegetative Vigor			Diluent:					
Ending Date:	24 Mar-20 14:34	Species:	Taxodium distichum (Swamp Cypress)			Brine:					
Test Length:	306d 15h	Taxon:				Source:	Immo Herbst Pflanzenkonto				
Data Transform		Alt Hyp			Comparison Result			PMSD			
Untransformed		C > T			0.000513lbs ae/A passed height			9.46%			
Equal Variance t Two-Sample Test											
Control	vs	Conc-lbs ae/	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α :5%)		
Negative Control		0.000513	0.663	1.69	6.23	38	CDF	0.2555	Non-Significant Effect		
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat		P-Value	Decision(α :5%)		
Between	60.025		60.025		1	0.44		0.5110	Non-Significant Effect		
Error	5181.75		136.362		38						
Total	5241.78				39						
ANOVA Assumptions Tests											
Attribute	Test			Test Stat	Critical	P-Value	Decision(α :1%)				
Variance	Variance Ratio F Test			1.04	3.43	0.9316	Equal Variances				
Distribution	Shapiro-Wilk W Normality Test			0.89	0.924	1.0E-03	Non-Normal Distribution				
Height Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	65.8	60.4	71.2	62	52	96	2.58	17.57%	0.00%
0.000513		20	63.4	57.8	68.9	61	48	93	2.64	18.62%	3.72%
Graphics											
											

CETIS Analytical Report

Report Date: 24 Mar-20 20:45 (p 2 of 6)
 Test Code/ID: 51068202 swamp / 05-4475-7345

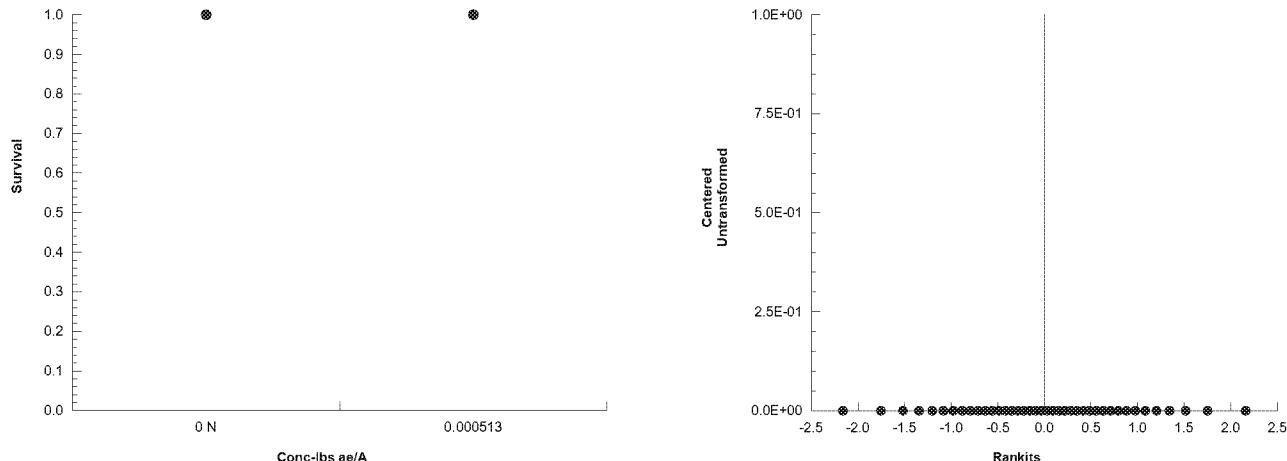
OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection				
Analysis ID:		15-1169-4978	Endpoint:		Height	CETIS Version:		CETISv1.9.5			
Analyzed:		24 Mar-20 20:42	Analysis:		Parametric-Two Sample	Status Level:		1			
Batch ID:	03-1389-2466	Test Type:	Vegetative Vigor Tier II		Analyst:						
Start Date:	23 May-19	Protocol:	OCSPP 850.4150 Plant Vegetative Vigor		Diluent:						
Ending Date:	24 Mar-20 14:34	Species:	Taxodium distichum (Swamp Cypress)		Brine:						
Test Length:	306d 15h	Taxon:			Source:	Immo Herbst Pflanzenkonto					
Data Transform		Alt Hyp			Comparison Result			PMSD			
Untransformed		C <> T			Solvent Blank passed height			12.08%			
Equal Variance t Two-Sample Test											
Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision($\alpha:5\%$)		
Negative Control	Solvent Blank	0.598	2.02	7.95	38	CDF	0.5531	Non-Significant Effect			
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision($\alpha:5\%$)			
Between	55.225		55.225		1	0.358	0.5531	Non-Significant Effect			
Error	5859.75		154.204		38						
Total	5914.97				39						
ANOVA Assumptions Tests											
Attribute	Test			Test Stat	Critical	P-Value	Decision($\alpha:1\%$)				
Variance	Variance Ratio F Test			1.31	3.43	0.5645	Equal Variances				
Distribution	Shapiro-Wilk W Normality Test			0.975	0.924	0.5175	Normal Distribution				
Height Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	20	68.2	62	74.3	66	45	91	2.96	19.40%	0.00%
0	N	20	65.8	60.4	71.2	62	52	96	2.58	17.57%	3.45%
Graphics											
											

CETIS Analytical Report

Report Date: 24 Mar-20 20:45 (p 3 of 6)
 Test Code/ID: 51068202 swamp / 05-4475-7345

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)				Bayer AG, Crop Protection							
Analysis ID:	10-6952-4772	Endpoint:	Survival	CETIS Version:	CETISv1.9.5						
Analyzed:	24 Mar-20 20:42	Analysis:	Parametric-Two Sample	Status Level:	1						
Batch ID:	03-1389-2466	Test Type:	Vegetative Vigor Tier II	Analyst:							
Start Date:	23 May-19	Protocol:	OCSPP 850.4150 Plant Vegetative Vigor	Diluent:							
Ending Date:	24 Mar-20 14:34	Species:	Taxodium distichum (Swamp Cypress)	Brine:							
Test Length:	306d 15h	Taxon:		Source:	Immo Herbst Pflanzenkonto						
Data Transform	Alt Hyp	Comparison Result									
Untransformed	C > T	0.000513lbs ae/A passed survival									
Equal Variance t Two-Sample Test											
Control	vs	Conc-lbs ae/	Test Stat	Critical	DF	P-Type	P-Value	Decision(α :5%)			
Negative Control		0.000513	0	1.69	38	CDF	1.0000	Non-Significant Effect			
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision(α :5%)			
Between	0		0		1	65500	<1.0E-37	Significant Effect			
Error	0		0		38						
Total	0				39						
Survival Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%
0.000513		20	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%

Graphics

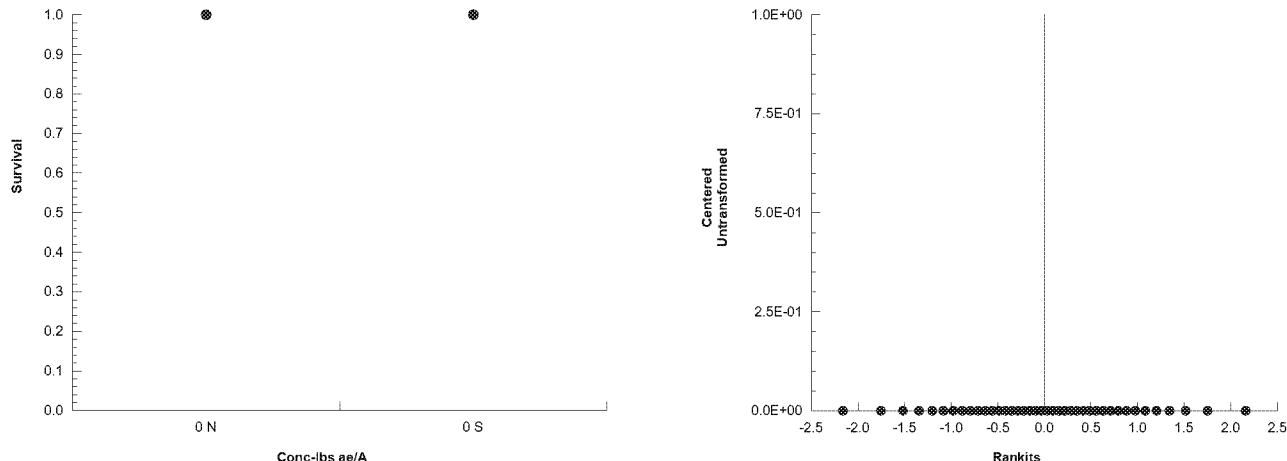


CETIS Analytical Report

Report Date: 24 Mar-20 20:45 (p 4 of 6)
 Test Code/ID: 51068202 swamp / 05-4475-7345

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)				Bayer AG, Crop Protection							
Analysis ID:		Endpoint: Survival	CETIS Version:		CETISv1.9.5						
Analyzed:	24 Mar-20 20:42	Analysis: Parametric-Two Sample	Status Level:		1						
Batch ID:	03-1389-2466	Test Type: Vegetative Vigor Tier II	Analyst:								
Start Date:	23 May-19	Protocol: OCSPP 850.4150 Plant Vegetative Vigor	Diluent:								
Ending Date:	24 Mar-20 14:34	Species: Taxodium distichum (Swamp Cypress)	Brine:								
Test Length:	306d 15h	Taxon:	Source: Immo Herbst Pflanzenkonto		Age:						
Data Transform		Alt Hyp	Comparison Result								
Untransformed		C <> T	Solvent Blank passed survival								
Equal Variance t Two-Sample Test											
Control	vs	Control II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α :5%)			
Negative Control		Solvent Blank	0	2.02	38	CDF	1.0000	Non-Significant Effect			
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision(α :5%)			
Between	0		0		1	65500	<1.0E-37	Significant Effect			
Error	0		0		38						
Total	0		0		39						
Survival Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	20	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%
0	N	20	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%

Graphics



CETIS Analytical Report

Report Date: 24 Mar-20 20:45 (p 5 of 6)
 Test Code/ID: 51068202 swamp / 05-4475-7345

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection				
Analysis ID:		06-3847-1239	Endpoint:		Weight	CETIS Version:		CETISv1.9.5			
Analyzed:		24 Mar-20 20:42	Analysis:		Parametric-Two Sample	Status Level:		1			
Batch ID:	03-1389-2466	Test Type:	Vegetative Vigor Tier II	Analyst:		Diluent:					
Start Date:	23 May-19	Protocol:	OCSPP 850.4150 Plant Vegetative Vigor	Species:		Brine:					
Ending Date:	24 Mar-20 14:34	Taxon:	Taxodium distichum (Swamp Cypress)	Source:		Immo Herbst Pflanzenkonto	Age:				
Test Length:	306d 15h										
Data Transform		Alt Hyp			Comparison Result			PMSD			
Untransformed		C > T			0.000513lbs ae/A passed weight			25.86%			
Equal Variance t Two-Sample Test											
Control	vs	Conc-lbs ae/	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α :5%)		
Negative Control		0.000513	-2.37	1.69	9.75	38	CDF	0.9885	Non-Significant Effect		
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat		P-Value	Decision(α :5%)		
Between	1876.49		1876.49		1	5.62		0.0230	Significant Effect		
Error	12697.7		334.151		38						
Total	14574.2				39						
ANOVA Assumptions Tests											
Attribute	Test		Test Stat	Critical	P-Value	Decision(α :1%)					
Variance	Variance Ratio F Test		2.07	3.43	0.1215	Equal Variances					
Distribution	Shapiro-Wilk W Normality Test		0.979	0.924	0.6637	Normal Distribution					
Weight Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	37.7	30.8	44.6	37.5	17.6	82	3.3	39.16%	0.00%
0.000513		20	51.4	41.4	61.3	49.2	13.4	87.2	4.75	41.32%	-36.36%
Graphics											

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Report Date: 24 Mar-20 20:45 (p 6 of 6)
 Test Code/ID: 51068202 swamp / 05-4475-7345

OCSPP 850.4150 Terrestrial Plant Tier II (Vegetative Vigor)							Bayer AG, Crop Protection				
Analysis ID:		03-1651-8873	Endpoint:		Weight	CETIS Version:		CETISv1.9.5			
Analyzed:		24 Mar-20 20:42	Analysis:		Parametric-Two Sample	Status Level:		1			
Batch ID:	03-1389-2466	Test Type:	Vegetative Vigor Tier II	Analyst:		Diluent:					
Start Date:	23 May-19	Protocol:	OCSPP 850.4150 Plant Vegetative Vigor	Species:		Brine:					
Ending Date:	24 Mar-20 14:34	Taxon:	Taxodium distichum (Swamp Cypress)	Source:		Immo Herbst Pflanzenkonto	Age:				
Test Length:	306d 15h										
Data Transform		Alt Hyp			Comparison Result			PMSD			
Untransformed		C <> T			Solvent Blank failed weight			28.33%			
Equal Variance t Two-Sample Test											
Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α :5%)		
Negative Control	Solvent Blank*	2.59	2.02	10.7	38	CDF	0.0136	Significant Effect			
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision(α :5%)			
Between	1862.82		1862.82		1	6.7	0.0136	Significant Effect			
Error	10562.7		277.965		38						
Total	12425.5				39						
ANOVA Assumptions Tests											
Attribute	Test			Test Stat	Critical	P-Value	Decision(α :1%)				
Variance	Variance Ratio F Test			1.55	3.43	0.3449	Equal Variances				
Distribution	Shapiro-Wilk W Normality Test			0.96	0.924	0.1736	Normal Distribution				
Weight Summary											
Conc-lbs ae/A	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	20	51.3	42.7	59.9	48.7	17.3	87	4.11	35.83%	0.00%
0	N	20	37.7	30.8	44.6	37.5	17.6	82	3.3	39.16%	26.59%
Graphics											
